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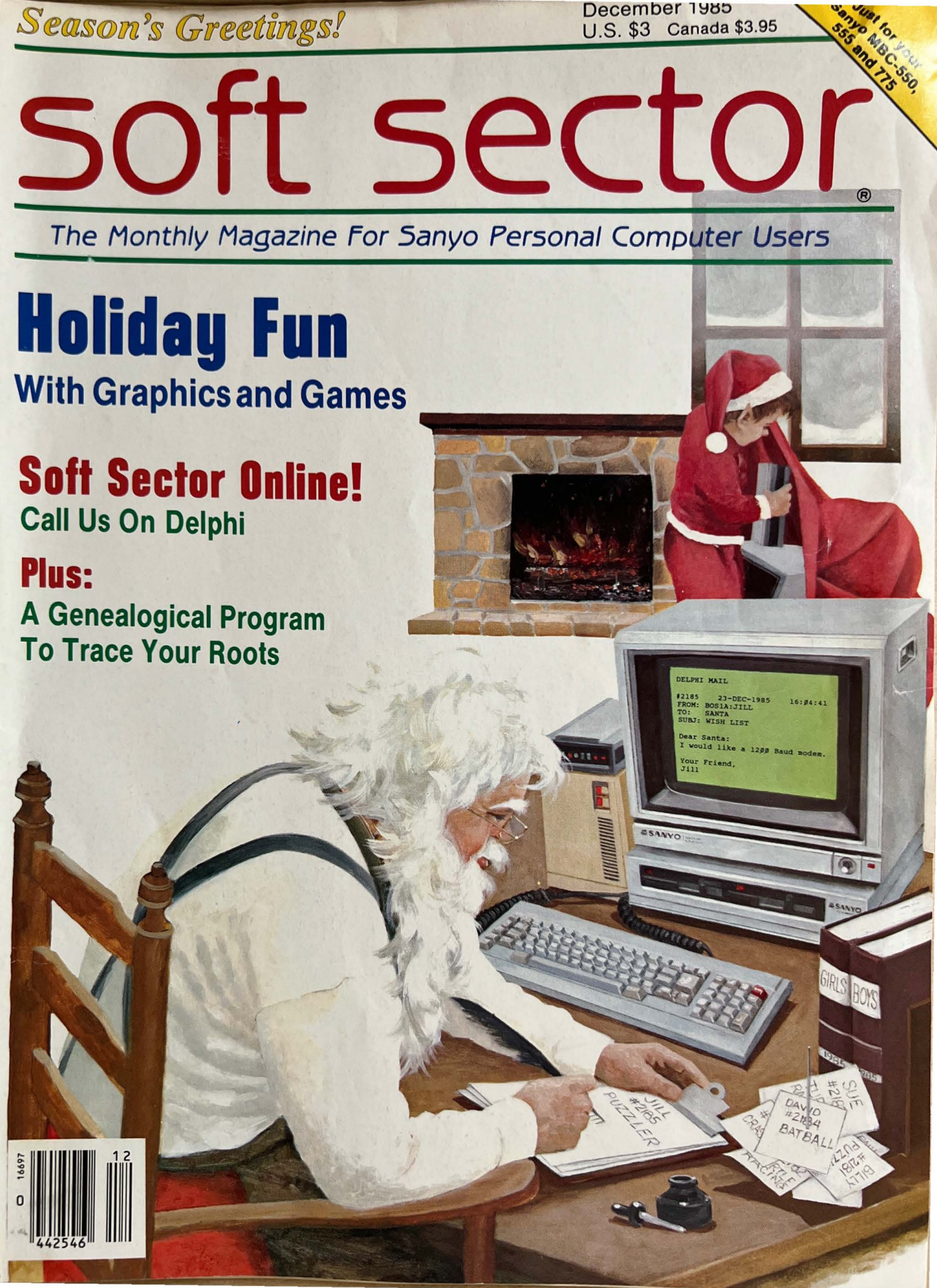

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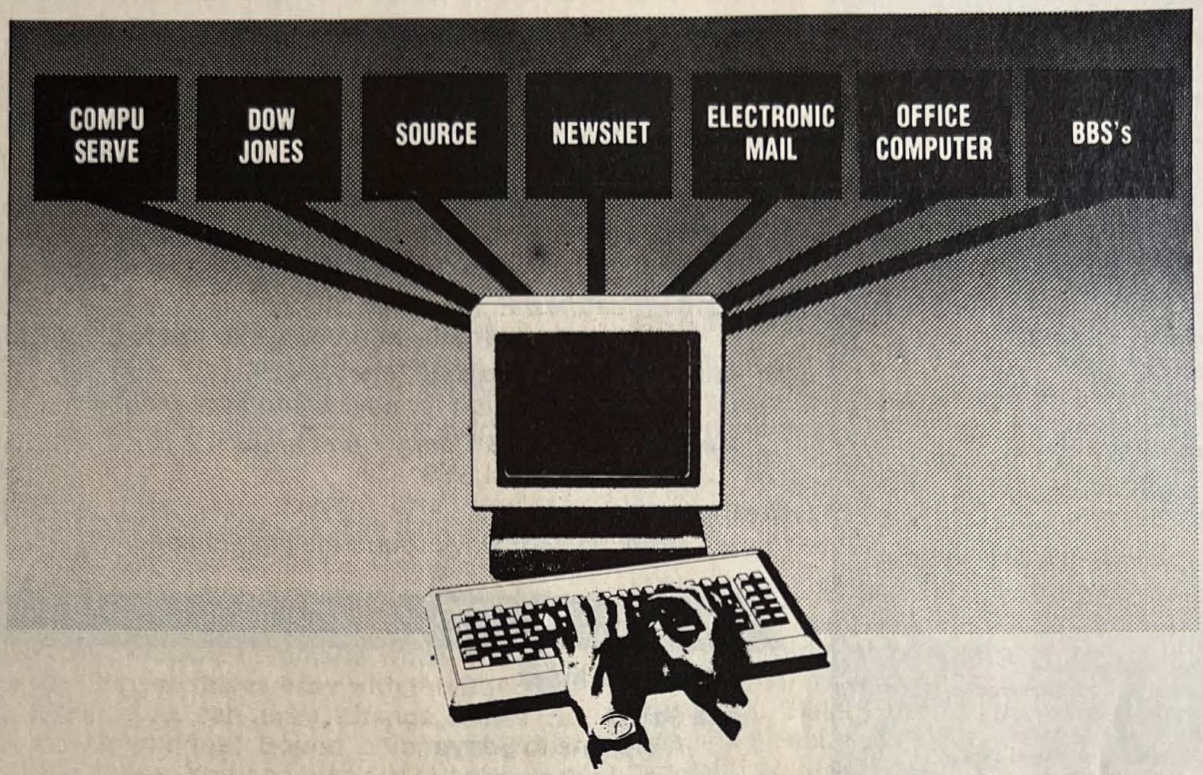

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The small disk symbols appearing beside features and regular columns indicate that the program listings with those articles are on this month's SOFT SECTOR ON DISK, ready to LOAD and RUN. For full details, see the SOFT SECTOR ON DISK ad on Page 62.

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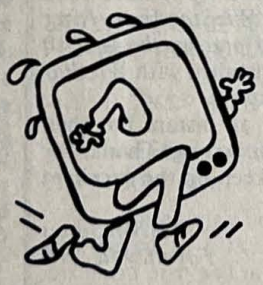

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LETTERS TO THE EDITOR

PAR AVION

A SIMPLE FUNCTION

Editor:

We tried *Blitz Star* (August '85, Page 44) and are quite pleased with the faster operation.

However, this patch eliminates the reverse video and with it the Function Key labels at the bottom of the screen. Is there any way we can have the faster operation *and* the function labels?

We have installed *WizStar* (March '85, Page 8), and the Functions PF11 through PF20 are still displayed in reverse video at the bottom of the screen.

We are using *WordStar* with *Keyworks* (an excellent keyboard macro program). It does not call up the function labels either.

John B. Ayers
Vice President
Reflex, Inc.
Providence, RI

ME TOO!

Editor

I have experienced a problem after installing the patches provided by *WizStar* and *Blitz Star.* I installed *WizStar* first. After installing the *Blitz Star* patches the first 10 preset Function Keys installed with *WizStar* would no longer display.

They do display for an instant but then disappear. What did I do wrong? Thanks for a great magazine and keep up the excellent work.

Alvin Jones
Fayetteville, NC

Editor's Note: See "Letters To The Editor" (November '85, Page 7) for the step that enables the inverse video. You will find it in "A Pat On The Back."

GOOD AS SILVER

Editor:

I know I'm speaking for many of my customers when I congratulate SOFT SECTOR for running the "Ask Sanyo" column. For over a year we have been recommending SOFT SECTOR as the best investment a Silver Fox owner can make. The addition of Sandy Waters' commentary on the Sanyo series of computers can only enhance that recommendation.

With regard to a question put forth in that premier column; I should point out that since the Silver Fox *is*, indeed, a modified Sanyo computer we feel very comfortable in offering our own one year warranty on the product. Sanyo's reputation for quality control and reliability was the deciding factor in our choice of machine on which to base the Silver Fox.

Thomas M. Scott
Scottsdale Systems Ltd.
Scottsdale, AZ

SEEKING SUPPORT ELSEWHERE

Editor:

I have seen a lot of questions about *CalcStar* in "Business Sector." I have been following developments on the Micropro Forum on CompuServe, and the news is not good. Micropro has decided to support word processing at the expense of support for other programs. This includes *CalcStar*, which will not be fixed, updated or supported.

The best fix for *CalcStar* is a new spreadsheet. The best bargain I have found is *MyCalc* from The Software Toolworks, 15233 Ventura Blvd., Suite 1118, Sherman Oaks, Calif. 91403. The *MyCalc* installation menu includes an option for the non-Video Board Sanyo. In this application it works perfectly. The only bad news is that it does not scroll well when used with a VB Sanyo. However, I have both *Lotus 1-2-3* and *MyCalc*, and *MyCalc* is so much more satisfactory that I run it instead of *Lotus* even though I have to switch the monitor first. This is especially surprising since the full price of *MyCalc* is $59.95.

I hope this will help your readers, since the Sanyo is severely crippled when using *CalcStar* as a spreadsheet.

Pat O'Neil
Tempe, AZ

SPEAKING FOR SANYO

Editor:

I have had my Sanyo for nearly a year, but have just recently discovered your magazine. I regularly recommend the Sanyo line of computers to friends and business associates and am happy to have found a quality publication to which I can direct them for information, articles and reviews relating to these fine products.

In the article by Philip MacKenzie and Jeff Sorensen in your September issue

entitled "The Better Basic Bureau," the authors state that the command (or keyword) CSRLIN will elicit a "Syntax Error" message.

I have been making extensive use of CSRLIN in my programs which have run in both Version 1.25 and 1.32 of Sanyo BASIC. CSRLIN returns the line the cursor is on just as POS returns the column it is in. My most common use for this is the line LOCATE CSRLIN,POS,0 or LOCATE CSRLIN,POS,1 to turn the cursor off or on without changing its position. Aside from this minor correction, this was a very interesting and enlightening article, and I sincerely thank MacKenzie and Sorensen for providing a real voice for our Sanyos.

W.A.(Bill) Haynes
Eugene, OR

INFORMATION SEEKERS

Editor:

I am a new user of the Sanyo MBC-555. Please tell me if there are any Sanyo User's Groups in my area. If not, please give me some information on how it works and how to start one.

Bob Szypulewski
Vancouver, B.C.

Editor's Note: Please check our most current "Clubs" listing which ran in November '85, Page 60.

SIMPLE INVERSION

Editor:

There is an important piece of information missing from Figure 2 of my article "Have Your Monitor Compatibility and Vertical Interlace, Too!" (September '85, Page 52). There should have been a note reminding the reader to supply +5 volts to Pin 14 of the quad gate IC, and to ground Pin 7. Some folks probably picked this up from Figure 1, where it *was* shown, but a number of people had trouble and called me about it. Also, be careful when counting pins: There is a dot or notch molded into the plastic on top of an IC. You start counting counter-clockwise from this mark when viewing the IC from the top.

Several people have called to ask how to modify the circuit in Figure 1 when they only want to add the interlace feature to a monitor which is already compatible with the Sanyo standard video output. To avoid inverting the sync pulses, make the following two changes: 1) Connect the Horizontal Sync line directly from the input to the output without using the Inverter IC4. 2) Use IC4 to re-invert the output of IC3 by connecting Pin 10 to Pin 12 and Pin 11 to the output connector. (Pin 13 remains grounded.)

Ron Tevonian
Wheaton, IL

CROSS-REFERENCING

Editor:

I just wanted to tell you how much I appreciated the *XREF*, cross-referencing program in the October '85 issue, Page 19. I am a psychology graduate student who programs for the industrial engineering department at the University of Oklahoma.

I used *XREF* on one of our almost finished programs written mostly on an IBM-XT at school, and partially on my Sanyo (with VB) at home. My compatibility is quite good. However, sound commands in compiled programs cause it to "hang up." A graphics display program of about 600 lines took between 59 and 60 minutes to be processed by the *XREF* program in interpreted BASICA. I only had to dimension the array D$ from Line 1060 to get it to compile with an IBM compiler. Then, the same program was processed completely in just under 10 minutes. Quite an improvement.

I intend to modify the *XREF* output with *WordStar*, adding descriptions and comments for my professor and subsequent students who want to examine the program. I wish I had had this in the earlier development stages when I spent lots of time searching for variables in a program that was written by two people.

Rick Stevens
Norman, OK

Editor:

A problem with my *XREF* program published in the October '85 issue of SOFT SECTOR has become apparent when running the program under BASIC 3.1. The program was developed under BASIC 1.25. This problem may appear in other versions of BASIC, but I am not sure of this. The problem manifests itself as a syntax error in Line 740. I would recommend the following change so that it will be compatible with 1.31. Add the following lines:

```
565 ON ERROR GOTO 0
735 ON ERROR GOTO 835  trap basic 3.1
                       error
745 ON ERROR GOTO 0
823 '
824 '********* TRAP BASIC 3.1 ERROR
825 RESUME NEXT
```

This patch may be typed in as a program and saved to disk, then merged with the program or typed in directly.

The problem with the program lies in the way that BASIC 3.1 handles the VAL function. In 3.1, if the value of the string in the argument, (i.e., if the value of A$ in the statement PRINT VAL (A$)), is or contains a keyword, a syntax error is generated.

I'm not sure that this is a desirable trait. I don't agree with anything that creates a syntax error depending on variable values. A syntax error should be detected upon any pass through the code. At any rate, the program must be changed so that it will work as the TEST$ variable in Line 740 contains keywords on many occasions.

William J. Locke
Ocala, FL

Editor:

I have had some difficulty running the *XREF* program published in the October issue of SOFT SECTOR. I obtained the program via SOFT SECTOR ON DISK. I am running it against an ASCII file of 640 BASIC program statements and the first several times I tried to run it, the program hung on the 151st line of the input program.

I next tried it against a much smaller BASIC program — 10 lines — and it ran fine. After that, I put an "On Error" statement in the *XREF* program and displayed the "Error Number (ERR)" and the "Error Line (ERL)." According to the messages I displayed, the program hung on the 151st line of the input file with an ERROR CODE=2 (syntax error) and the ERROR LINE=600. Line 600 in the *XREF* program looks fine to me. I then tried it against a different BASIC program with 490 program statements and *XREF* hung after about 140 lines of the input with the same error.

I don't think the problem is in the ASCII source files I am processing but rather in the *XREF* program and the problem would appear to be related to input program size and/or number of variables. Maybe some other readers have had this same problem.

By the way, I am running a Sanyo MBC-555 with 256K of memory and DOS 1.25. Keep up the good work at SOFT SECTOR.

Thank you for your consideration.

Rick Simon
Herndon, VA

Editor's Note: Look for a patch to XREF *in the January '86 issue which will cross-reference control transfers as well as the program variables.*

IT'S A FACT

Editor:

I have a Sanyo MBC-555 with two, double-sided, double-density, TEAC disk drives. The indicator lights on the drives light according to the most recently used drive. This provides very little information to me, except to indicate that power is on, and I can tell that from the position of the power switch. I would very much like to modify the drives so that the light for a drive illuminates only when the drive motor is running, as is the case with most computers of this type (IBM PC, etc.). I have heard that this modification is easily done by moving a jumper wire, or by switching a DIP switch on the drive. Please verify this rumor and describe the procedure necessary for making the modification.

Thank you.

R.P. Landstrom
Palm Bay, FL

Editor's Note: Please refer to the article by John Kelty "TEAC FD-54A LED Modification" in the April '85 issue, Page 88. Also, you will find additional information in the "Letters To The Editor" column, June '85, Page 6 in the letter, "Shrews Are Tough To Tame."

SOFT SOAPBOX

Holidays, for most people, are festive occasions. Those that come around at the end of the year tend to be especially exciting and fun. Maybe this is because there's a lot of holidays coming one right after another or maybe it's because the new year is just around the corner and it's the time to start fresh — to do in the coming year what you had meant to do this year.

We at SOFT SECTOR have many reasons to be festive at the close of this year. As you can see on our cover, Santa is joining in the fun and convenience of our new Delphi service, which you will find advertised again in this issue. We hope you all are going to take advantage of the many services we are offering on Delphi.

Of the many features we are offering, one is a shopping service, which I think is an excellent place to begin looking for that special gift for your favorite computer enthusiast. You can also download any of the programs from SOFT SECTOR that you have been wanting, but have been putting off typing in because of the long listing.

Which brings me to another point. Many of you may remember in the October and November "Soft Soapbox," there was mention of downloading SOFT SECTOR programs from the "Softex" service on CompuServe. However, this will not be possible for at least another month due to the fact that CompuServe does not have a terminal program for the Sanyo. CompuServe is currently setting up the XMODEM protocol to allow you to download programs from their service. We apologize for any inconvenience this may have caused you.

Membership in SOFT SECTOR's MS-DOS SIG is fast increasing and I encourage you to join us. It's a lot more fun talking directly with SOFT SECTOR readers on Delphi and I'm sure you'll agree. It is a much faster way to get a response to your questions and it's *much* more exciting to know more than a name. By putting your profile in the "People On Delphi" section (both at the main menu and at the MS-DOS SIG menu), we can see what your interests are, what type of programs you would like to see, what type of music you like and even what sign of the zodiac you are!

More than this though, it creates a close-knit environment that puts you on a first-name basis with other readers and provides you with an opportunity to share your knowledge; not only about computers, but any other topic as well.

Speaking of other topics, I would like to bring attention to a program in this issue that many of you will find of interest. For those who want to learn more about your family, be sure to look for *Adding Leaves to the Family Tree* — an excellent program by Ed Kerns on Page 22. Many readers have been writing to SOFT SECTOR looking for a genealogical program to help them trace their family history, and this one should do the trick. The program article also gives simple instructions on how to convert the appropriate lines to allow it to run in GW-BASIC.

So don't miss out! Let's celebrate the holidays and bring in the new year together — on Delphi!

Wishing you a happy holiday season and a prosperous new year!

— Belinda Kirby

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It's the holiday gift season and time to tell Aunt Millie which **MichTron** program you'd like to receive. (Or time to decide which ones you'll buy yourself if anyone gives you cash!) Pick from the largest selection of Sanyo software any company offers. All programs run on the Sanyo 550 series; those listed in boldface also run on the Sanyo 700 and 800 series and other IBM-compatible computers.

For everyone:

BBS ($99.95) - bulletin-board system for your Sanyo.
Cornerman ($39.95) - sidekick for your Sanyo has calendar, notepad, calculator, dialer, even an ASCII table.
DI ($24.95) - advanced directory system sorts all files, even in subdirectories or on hard disks. Locates any file instantly.
M-Disk ($34.95) - classic RAM disk emulator makes your Sanyo super-fast at any disk-addressing operation.
Mi-Key ($34.95) - a key-change program. Type long strings with two or three keystrokes, or try out the Dvorak keyboard.
Mi-Term ($79.95) - terminal communication program helps your Sanyo talk to virtually any other computer system.
Mousetick ($34.95) - trick to make a joystick act like a mouse.
Printer Helper ($29.95) - controller helps Epson printers use their full range of features with your Sanyo.
Soft Spool ($34.95) - software print buffer and spooler keeps your computer working while the printer chugs along.
Solar Sim ($29.95) - educational solar simulation lets you estimate whether solar power is right for your home.
SuperDirectory ($39.95) - cataloger keeps track of all files on all your disks. Sorts, prints disk labels, more.
Type Right ($29.95) - training program makes you a faster, more accurate typist, helps prevent frustrating typos.

For businessmen:

Business Agreements ($49.95) - attorney-prepared legal forms and contracts simplify your business needs.
Calendar ($24.95) - appointment book brings order to your busy life at work or at home.
MasterGraph III ($89.95) - business graphics package creates dramatic line, bar and pie graphs.
Mi-Mail ($79.95) - menu-driven business mailing system creates mailing labels, even a personal phone book.
Personal Money Manager ($49.95) - home financial program keeps track of your budget, projects fixed expenses.
Pledge ($199.95) - tracks pledges and special gifts to religious institutions, reports to givers and the treasurer.
Quick and Simple ($49.95) - menu-driven, down-to-earth list manager features easy input, several output options.

For graphics artists:

Grafiti ($39.95) - an easy-to-use, basic drawing program.
Picasso ($99.95) - menu-driven, advanced free-form drawing package gives you absolute control of graphics.
FreezeFrame ($39.95) - versatile screen dump utility can be customized to take full advantage of your printer.

For programmers:

Drive Timer Plus ($24.95) - utility checks disk drives, encodes files and provides menu-driven DOS file commands.
DS DOS Plus 2.11 ($49.95) - MS-DOS enhancement package supports 80-track drives, IBM graphics, sorted directories.
EasyRecord ($199.95) - C-programmer's file utility manipulates files of all data types with easy-to-use functions.
EasyWindow ($199.95) - screen display manager makes custom windows easy from C-language programs.
Graphpac ($49.95) - package of graphics routines for Pascal, C and machine language programs.
Super Zap ($49.95) - full-featured disk editor lets you change anything anywhere on a disk. Fix disk errors with ease.
Transfer ($59.95) - data transfer program converts TRS-80 files to MS-DOS files, or vice-versa.

For gamers:

Text adventure games:
Adventure Disk #2 and ***Adventure Disk #3*** ($34.95 each) - five unique games on each disk.

Arcade games:
Cashman ($34.95) - take the money and run!
Demon Seed ($34.95) - first bats, then demons to defeat.
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Mudpies ($34.95) - throw them at angry circus clowns, duck the clowns and their Indian clubs.
Robounce ($24.95) - robot aliens move through invisible force fields that deflect your shots.
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BioGraphics — Putting Sanyo BASIC's Graphics Commands To Work

By Fred Blechman
Soft Sector Contributing Editor

For many years the subject of "biorhythms" (theoretical bodily cycles starting at birth), has been a controversial issue. Proponents claim you can graph these cycles to determine your physical, emotional and intellectual "high, low and critical days." Opponents claim it's all hogwash!

I won't take sides, except to say that many years ago I was attracted by the mathematical nature of plotting biorhythm cycles, and have had several gadgets along the way to aid in that endeavor. I even bought the "Biolator," an electronic calculator made by Casio several years ago, specifically designed for biorhythm curve calculations.

When personal computers came along, plotting biorhythm curves was a natural program application, and biorhythm programs exist for most microcomputers. However, since most micros differ in the way they display graphic functions, a program written for one micro may take considerable conversion to work on another.

My *Bio-Graf* program is written for the Sanyo 550 series, and takes advantage of the high-resolution graphics and color.

The program is somewhat complex and includes a subroutine to determine the number of days between two dates. All the keywords used have been covered in this or previous articles in this series, so there are no "surprises."

Running The Program

The first thing the *Bio-Graf* program does is set the background color to white, and the foreground (PRINTing) color to black. This tends to produce sharper images, but may be omitted, leaving green lettering on a white background until the curve colors are specified later.

The subroutine from lines 2000 to 2170 allows you to enter your birthday, desired *Bio-Graf* month and your name. Multiple INPUT statements are used for the date prompts (like birthday), so use commas between the requested dates and then hit ENTER.

Days Between Two Dates

In two places within this subroutine, the program branches to another subroutine, lines 4000 to 4190, which calculate the number of days since March 1, 1900. One calculation results in the number of days you have been alive since that date (DS in Line 2050), and another calculation determines the number of days since that date to the first day of the desired *Bio-Graf* month (DE in Line 2080). The end result is that Line 2090 calculates the number of days you have lived from your birthday to the first day of the month of the *Bio-Graf* (R in Line 2090).

Lines 2100 to 2130 determine the number of days in the target month, and your name is requested. A screen heading is then printed to end this main subroutine, and the program returns to Line 200.

Drawing The Grid And Curves

Lines 200 to 310 draw the graph grid and label the axis with odd day numbers. Lines 400 to 510, in conjuction with subroutines starting in lines 3000 and 1000, calculate the curve position (how many days into the cycle) for each curve, and then draw the curves with PSET, using a different color for each curve.

To minimize confusion between curves, the peaks and valleys of each curve are labeled with the letters P for "Physical," S for "Sensitivity" (sometimes called "Emotional") and I for "Intellectual." Also, the number of days into each cycle is printed below the graph. To prevent a "Ready" prompt from corrupting the screen, Line 600 puts the program into an endless loop. You'll have to hit BREAK to regain control of the computer.

For Entertainment Only

Some people have been known to take biorhythm curves so seriously that they literally schedule their activities around

(Fred Blechman, an acknowledged authority on home computers, has written several articles and books related to microcomputers. He is self-taught in electronics and computer BASIC programming and specializes in writing for beginners. Fred may be contacted at 7217 Bernadine Ave., Canoga Park, CA 91307; 818-346-7024.) *Copyright© 1985 by Fred Blechman.*

them. Advice such as, "When all three curves are critical, jump into bed and hide under the covers! Don't drive your car! Don't travel! Don't schedule job interviews if your Intellectual curve is low!" and so forth, can best be considered extreme. The ease of calculating the curves for yourself and others could lead to obsessive use. They are offered here for entertainment only.

Going Further

We've covered a lot of ground in this article yet have only scratched the surface of the COLOR and graphics capabilities of the Sanyo MBC-550 series. It would take considerably more space to go into the details and intricacies of graphics applications, such as bar graphs, pie charts and the endless variety of graphing mathematical functions. Again I encourage you, if this is a serious interest of yours, get a book devoted exclusively to computer graphics — especially one oriented toward the IBM PC. While certain commands, such as DRAW, are not available on the Sanyo, and some others may vary slightly in use or syntax, the majority of IBM PC graphics statements are available in Sanyo BASIC and are used the same way.

The listing: BIOGRAF.BAS

```
1ØØ REM ***********************************************
11Ø REM *     "Bio-Graf" (C) Fred Blechman 1984       *
12Ø REM * Designed especially for the Sanyo 55Ø Series *
13Ø REM ***********************************************
14Ø COLOR Ø,7:CLS:GOSUB 2ØØØ
2ØØ REM * Draw grid *
21Ø FOR L=Ø TO 2Ø*DAYS STEP 2Ø
22Ø LINE(L,2Ø)-(L,18Ø)
23Ø NEXT L
24Ø LINE(Ø,1ØØ)-(DAYS*2Ø,1ØØ)
25Ø REM * Day numbers on grid axis *
26Ø LOCATE 14,1
27Ø FOR N=1TO 9 STEP 2
28Ø PRINT N;"  ";:NEXT
29Ø LOCATE 14,25
3ØØ FOR N=11 TO DAYS STEP 2
31Ø PRINT N;" ";:NEXT
4ØØ REM * Physical Curve *
41Ø COLOR 4:GOSUB 3ØØØ
42Ø A=36Ø/(2Ø*23):S=A*D*2Ø:A$="P"
43Ø GOSUB 1ØØØ
44Ø REM * Sensitivity Curve *
45Ø COLOR 2:GOSUB 3Ø4Ø
46Ø A=36Ø/(2Ø*28):S=A*D*2Ø:A$="S"
47Ø GOSUB 1ØØØ
48Ø REM * Intellectual Curve *
49Ø COLOR 6:GOSUB 3Ø7Ø
5ØØ A=36Ø/(2Ø*33):S=A*D*2Ø:A$="I"
51Ø GOSUB 1ØØØ
6ØØ COLOR Ø:GOTO 6ØØ
1ØØØ REM * Draw and label curve *
1Ø1Ø FOR X=Ø TO 2Ø*DAYS
1Ø2Ø Y=1ØØ-8Ø*SIN (S*1.74533E-Ø2)
1Ø3Ø IF Y>179 AND X/8<81 AND X/8>1 THEN LOCATE 23,X/8:PRINT A$;
1Ø4Ø IF Y<21 AND X/8<81 AND X/8>1 THEN LOCATE 3,X/8:PRINT A$;
1Ø5Ø PSET(X,Y)
1Ø6Ø S=S+A
1Ø7Ø NEXT X
1Ø8Ø RETURN
2ØØØ REM * User inputs *
2Ø1Ø CLS:PRINT:PRINT TAB(3Ø)"B i o - G r a f"
2Ø2Ø PRINT
2Ø3Ø INPUT"Your birthday (MM,DD,YY)";M,D,Y:Y=Y-1
2Ø4Ø GOSUB 4ØØØ
2Ø5Ø DS=DT
```

```
2Ø6Ø INPUT"Bio-Graf month (MM,YY)";M,Y:D=1:DAYS=M:MONTH=M:YEARS=Y:Y=Y-1
2Ø7Ø GOSUB 4ØØØ
2Ø8Ø DE=DT
2Ø9Ø R=DE-DS: IF R<Ø THEN PRINT "Oops!! Dates entered wrong!": FOR T=1 TO 3ØØØ:
NEXT T: CLS : GOTO 2ØØØ
21ØØ IF DAYS=2 THEN DAYS=28
211Ø IF DAYS=28 AND YEARS/4=INT(YEARS/4) THEN DAYS=29
212Ø IF DAYS=4 OR DAYS=6 OR DAYS=9 OR DAYS=11 THEN DAYS=3Ø:GOTO 214Ø
213Ø IF DAYS<>28 AND DAYS<>29 THEN DAYS=31
214Ø INPUT "What is your first name ";N$
215Ø CLS:PRINT TAB(3Ø)"B i o - G r a f"
216Ø PRINT TAB(25)"For: ";N$;"   Month: ";MONTH;"/";YEARS
217Ø RETURN
3ØØØ REM * Calculate days for each cycle *
3Ø1Ø REM * Physical Cycle *
3Ø2Ø Q=INT(R/23):D=R-(Q*23):LOCATE 24,2Ø:PRINT "Physical=";D;
3Ø3Ø RETURN
3Ø4Ø REM * Sensitivity Cycle *
3Ø5Ø Q=INT(R/28):D=R-(Q*28):LOCATE 24,4Ø:PRINT "Sensitivity=";D;
3Ø6Ø RETURN
3Ø7Ø REM * Intellectual Cycle *
3Ø8Ø Q=INT(R/33):D=R-(Q*33):LOCATE 25,3Ø:PRINT "Intellectual=";D;
3Ø9Ø RETURN
4ØØØ REM * Calculate total days since March 1, 19ØØ *
4Ø1Ø YT=Y-19Ø1
4Ø2Ø LT=INT(YT/4)
4Ø3Ø IF Y/4=INT(Y/4) AND M<3 THEN LT=LT+1
4Ø4Ø IF M=1 THEN MT=Ø:GOTO 419Ø
4Ø5Ø IF M=2 THEN MT=31: GOTO 419Ø
4Ø6Ø IF M=3 THEN MT=59: GOTO 416Ø
4Ø7Ø IF M=4 THEN MT=9Ø: GOTO 416Ø
4Ø8Ø IF M=5 THEN MT=12Ø: GOTO 416Ø
4Ø9Ø IF M=6 THEN MT=151: GOTO 416Ø
41ØØ IF M=7 THEN MT=181: GOTO 416Ø
411Ø IF M=8 THEN MT=212: GOTO 416Ø
412Ø IF M=9 THEN MT=243: GOTO 416Ø
413Ø IF M=1Ø THEN MT=273: GOTO 416Ø
414Ø IF M=11 THEN MT=3Ø4: GOTO 416Ø
415Ø IF M=12 THEN MT=334
416Ø DT=(YT*365+3Ø6)+LT+MT+D: Y=Y+1
417Ø IF Y/4=INT(Y/4) THEN DT=DT+1
418Ø RETURN
419Ø DT=(YT*365+3Ø6)+LT+MT+D: RETURN
```


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KALEIDOSCOPE

A Thing Of Beauty . . .

By Paul V. Hyer

I guess it started when we were Christmas shopping in December, 1983. We went into a shop selling scientific and environmental doodads. And there was a kaleidoscope — and a beauty at that. Mahogany and brass and a knockout display. When my wife said "Oh, look!" I boasted, "I can do that on our home computer!" The truth was that we did not yet have a home computer. We had recently become aware of what a bargain the Sanyo was, but it was not until the following May that we broke. When we did, we shot the whole nickel and got a color monitor. On and off, the kaleidoscope project was in gestation. Finally, during that summer I sat down and worked out the code.

In a physical kaleidoscope (perhaps we could call it a prototype?) there is a jumble of "things" that produce an image which gets reflected and reflected

(Paul Hyer is an environmental engineer holding a Ph.D. in physics. He has several years experience in computer simulation. He may be contacted at Route 198, Blakes, VA 23020; 804-725-3593.)

again to yield arresting patterns. The programs I worked out try to emulate this process. First, there is a triangle with random vertices and random color. This figure is repeatedly reflected and rotated until it fills the screen. Then another pattern is laid on top of it. The initial display is of five patterns. You can then add a single color, by entering a '1', or you can start all over by typing another positive integer. On a monochrome monitor you get various shadings in place of various colors. Some of the colors cause the pattern on the screen to blink on and off. A green screen dump works (for the green signal only, of course).

There are also some surprises in this program. For one thing, the symmetry might break down when the triangles are large enough to overlap each other. In such a case, the PAINT command gets thwarted and some corners don't get colored in. Another thing that could happen is that a color starts to "bleed," wiping out the whole pattern and leaving a monochromatic wash. Of course, one of the possible colors is black, so you could watch pieces of your display artfully disappear. Finally, if you specify a very large number, you will begin to see some fascinating fine details, resembling papooses or wooden soldiers or little airplanes which makes it more fun.

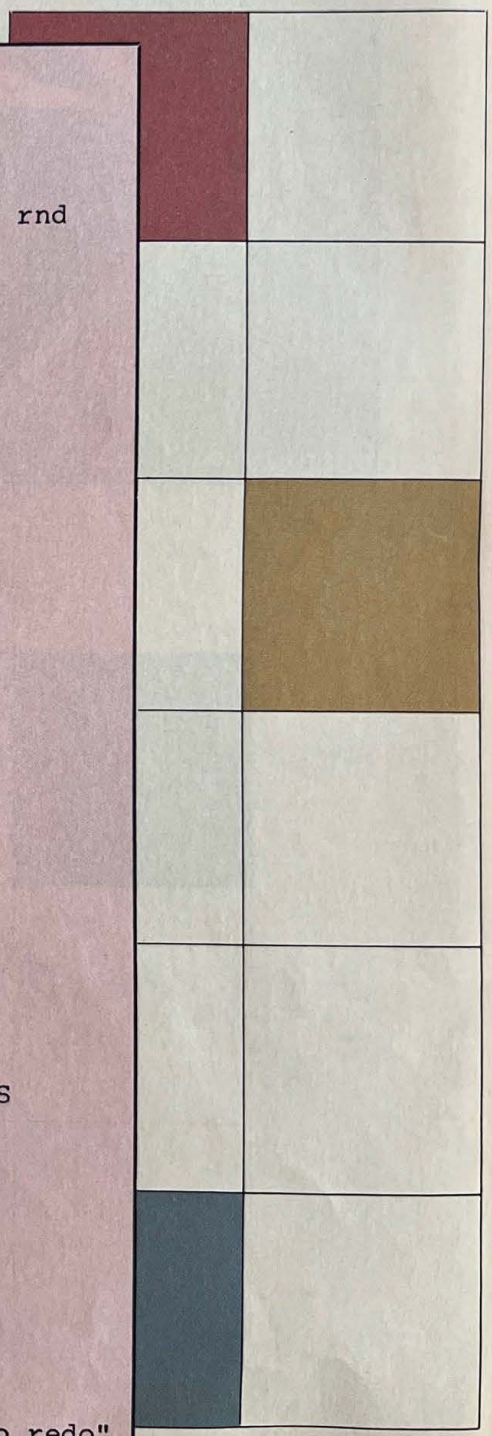
Writing this program and watching it run has made me think about art and mathematics. Pure mathematical figures are beautiful in their regularity, but an artist makes something even more beautiful by knowing instinctively when to break the rules. A kaleidoscope does the same thing, albeit in a small way, by injecting a note of randomness into the purity of geometrical figures.

So what's next? I personally am working on a pattern of 24 little triangles; it's the kind of display you might expect from a kaleidoscope with three mirrors placed equilaterally. Perhaps someone else could work out a way of quickly PAINTing mixed colors, giving 28 or so possible hues. After the program was worked out, I discovered an article in the November, 1982 issue of *Smithsonian Magazine* on kaleidoscopes. Anybody who's interested should refer to this article for inspiration.

By the way, my program didn't get me off the hook. In March, we drove through a lovely little town in North Carolina and visited their Arts Council Headquarters. There was a kaleidoscope in brown tiffany glass and brass with a matching velvet slip case and well . . ..

Listing 1: KALØ8.BAS

```
1 :REM KALEIDESCOPE WITH EIGHT-FOLD SYMMETRY KALØ8.BAS
2 :REM FOR GENERAL USE AND ENJOYMENT
1Ø DIM XC(8,4),YC(8,4),XS(8,4),YS(8,4)
11 PRINT "input a number from 1 to 1ØØ":REM set base for rnd
12 INPUT JR
13 FOR IR = 1 TO JR :LET X=RND(1):NEXT IR
16 JM=5
2Ø LOCATE 1,1,Ø:CLS
25 FOR J=1 TO JM
3Ø CX=Ø:CY=Ø:X=1
35 C=8*RND(1):C=INT(C)
4Ø FOR I=1 TO 3
5Ø X=X*RND(1):Z=SQR(1!-X*X)
52 Y=Z*RND(1)
55 IF X<.Ø1 THEN X=1Ø*X:IF Y<.Ø1 THEN Y=1Ø*Y
6Ø CX=CX+X:CY=CY+Y:REM FIND CENTROID FOR COLOR COMMAND
7Ø XC(1,I)=X:YC(1,I)=Y
8Ø NEXT I:REM XC,YC ARE CARTESIAN COORDS
9Ø XC(1,4)=CX/3:YC(1,4)=CY/3:REM USED FOR PAINT COMM
1ØØ FOR I=1 TO 4
11Ø X=XC(1,I):Y=YC(1,I)
14Ø XC(8,I)=X:YC(8,I)=-Y:REM REFLECTONS
15Ø XC(4,I)=-X:YC(4,I)=Y
16Ø XC(5,I)=-X:YC(5,I)=-Y
17Ø XC(2,I)=Y:YC(2,I)=X:REM NINETY DEGREE ROTATION
18Ø XC(3,I)=-Y:YC(3,I)=X
19Ø XC(6,I)=-Y:YC(6,I)=-X
2ØØ XC(7,I)=Y:YC(7,I)=-X
26Ø FOR K=1 TO 8
27Ø XS(K,I)=2ØØ*(1.6+XC(K,I)):REM XS,YS ARE SCREEN COORDS
275 YS(K,I)=1ØØ*(1!+YC(K,I))
3ØØ IF I=1 THEN GOTO 34Ø
3Ø2 L=I:IF I=4 THEN L=1
3Ø5 M=I-1
31Ø LINE(XS(K,L),YS(K,L))-(XS(K,M),YS(K,M)),C
33Ø IF I=4 THEN PAINT(XS(K,I),YS(K,I)),C
34Ø NEXT K
35Ø NEXT I
36Ø NEXT J
37Ø LOCATE 1,1:COLOR 1+INT(RND*7),Ø:PRINT "1 to add,>1 to redo"
```



```
375 PRINT "<1 TO EXIT":INPUT JM
38Ø IF JM>1 THEN GOTO 2Ø
385 IF JM=1 THEN GOTO 25
4ØØ END
```

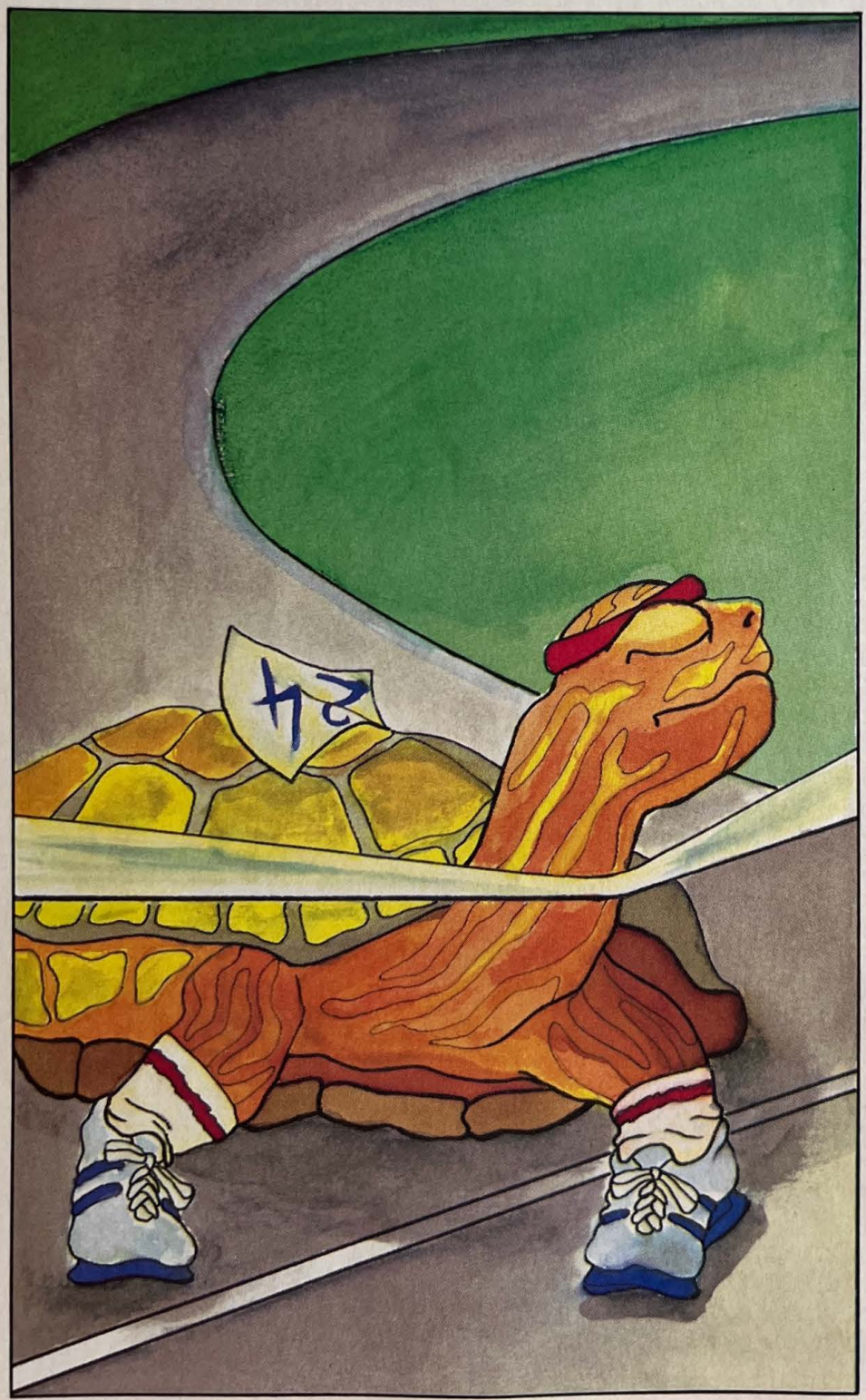
Listing 2: KAL12:BAS

```
1 :REM KALEIDESCOPE WITH TWELVE-FOLD SYMMETRY KAL12.BAS
2 :REM PAUL V. HYER
3 :REM FOR GENERAL USE AND ENJOYMENT
1Ø DIM XC(12,4),YC(12,4),XS(12,4),YS(12,4)
11 PRINT "input a number from 1 to 1ØØ":REM set base for rnd
12 INPUT JR
13 FOR IR = 1 TO JR :LET X=RND(1):NEXT IR
15 SN=.866:CS=.5:TN=SN/CS
16 JM=5
2Ø LOCATE 1,1,Ø:CLS
25 FOR J=1 TO JM
3Ø CX=Ø:CY=Ø:X=1
35 C=8*RND(1):C=INT(C)
4Ø FOR I=1 TO 3
5Ø X=X*RND(1):Z=SQR(1!-X*X)
52 Y=Z*RND(1)
55 IF X<.Ø1 THEN X=1Ø*X:IF Y<.Ø1 THEN Y=1Ø*Y
6Ø CX=CX+X:CY=CY+Y
7Ø XC(1,I)=X:YC(1,I)=Y
8Ø NEXT I:REM XC,YC ARE CARTESIAN COORDS
9Ø XC(1,4)=CX/3:YC(1,4)=CY/3:REM USED FOR PAINT COMM
1ØØ FOR I=1 TO 4
11Ø X=XC(1,I):Y=YC(1,I)
12Ø XA=X*SN:XB=X*CS
13Ø YA=Y*SN:YB=Y*CS
14Ø XC(12,I)=X:YC(12,I)=-Y:REM REFLECTONS
15Ø XC(6,I)=-X:YC(6,I)=Y
16Ø XC(7,I)=-X:YC(7,I)=-Y
17Ø XC(3,I)=XB-YA:YC(3,I)=XA+YB:REM ROTATIONS
18Ø XC(2,I)=XB+YA:YC(2,I)=XA-YB
19Ø XC(4,I)=-XC(3,I):YC(4,I)=YC(3,I):REM REFLECTIONS OF ROTATIONS
2ØØ XC(5,I)=-XC(2,I):YC(5,I)=YC(2,I)
21Ø XC(8,I)=-XC(2,I):YC(8,I)=-YC(2,I)
22Ø XC(9,I)=-XC(3,I):YC(9,I)=-YC(3,I)
23Ø XC(1Ø,I)=XC(3,I):YC(1Ø,I)=-YC(3,I)
24Ø XC(11,I)=XC(2,I):YC(11,I)=-YC(2,I)
26Ø FOR K=1 TO 12
27Ø XS(K,I)=2ØØ*(1.6+XC(K,I)):REM XS,YS ARE SCREEN COORDS
275 YS(K,I)=1ØØ*(1!+YC(K,I))
3ØØ IF I=1 THEN GOTO 34Ø
3Ø2 L=I:IF I=4 THEN L=1
3Ø5 M=I-1
31Ø LINE(XS(K,L),YS(K,L))-(XS(K,M),YS(K,M)),C
33Ø IF I=4 THEN PAINT(XS(K,I),YS(K,I)),C
34Ø NEXT K
35Ø NEXT I
36Ø NEXT J
37Ø LOCATE 1,1:COLOR 1+INT(RND*7),Ø:PRINT "1 to add,>1 to redo"
375 PRINT "<1 TO EXIT":INPUT JM
38Ø IF JM>1 THEN GOTO 2Ø
385 IF JM=1 THEN GOTO 25
4ØØ END
```

This sporty little program pays off with a change of pace for the hard-shell hacker

Turtle Racing

By Pat Brestel



Turtle racing has always been an exciting sport. In fact, last year more people went turtle racing than frog jumping or rock swimming. The only reason you have never seen turtle racing on *The Wide World Of Sports* is because of the fierce competition. Some of the trainers have even been know to scold their turtles on nationwide TV.

Until now, there has not been a way to bring turtle racing into the home, but with this computer simulation everyone can enjoy turtle racing. Not only can you see the turtles race but you can also bet on them. Every aspect of a real turtle race is incorporated into this game. There are racing turtles, live betting, different odds on the slower turtle, and the fun and heartbreak of the pay off.

In this game there are three turtles. Their names are Little Turtle, Frog and Hon. They are numbered 1, 2 and 3 respectively. There can be up to four players. Each of the players can bet before the race starts. When betting, you can bet on any one of the three turtles you want and two or more can bet on the same turtle if so inclined, but each player can only bet on one turtle. Every once in a while, one of the turtles will have three to one odds; this means that this turtle will pay more than the other turtles for this race, but it is also a little slower. You can continue to bet until you run out of money.

This game uses GET and PUT statements in the BASIC program and requires 256K. The program may work with only 192K but I have not tried it.

After you type in the program, type SAVE "RACE" and the computer will save your program just as you typed it in.

To run this program all you have to do is load BASIC by typing BASIC at the A: prompt. Then type RUN "RACE" and it will begin.

(Pat Brestel is currently working as a purchasing manager at Software City in Tucson, Ariz. He enjoys programming in his spare time and may be contacted at 6915 Table Mount Rd., Tucson, AZ 85718; 602-293-6078.)

The listing: RACE.BAS

```
1 DIM D1(4),W(4)
2 CLS:PRINT "      DRAWING THE TURTLES":GOTO 1ØØØØ
1Ø PRINT "PRESS ANY KEY TO START THE RACE"
11 A$=INKEY$:IF A$= "" THEN 11
12 LOCATE 24,1,Ø:CLS
2Ø Z= VAL(RIGHT$(TIME$,2)):IF Z = Ø THEN 1Ø
3Ø RANDOMIZE Z
1ØØ A= INT(RND(Z)*E2)+ 2:B= INT(RND(Z)*E3)+ 2:C= INT(RND(Z)*E4)+2
11Ø A1= A1+ A:B1= B1+ B:C1= C1+ C
113 LINE (639,1)-(639,175),7
12Ø PUT (A1,4),A%:PUT (B1,54),B%:PUT (C1,1Ø4),C%
13Ø IF A1 > 5ØØ OR B1 > 5ØØ OR C1 > 5ØØ THEN 15Ø
14Ø GOTO 1ØØ
15Ø IF A1 > B1 AND B1 > C1 THEN A=1:B=2:C=3
16Ø IF A1> C1 AND C1> B1 THEN A=1:B=3:C=2
17Ø IF B1> A1 AND A1 > C1 THEN A=2:B=1:C=3
18Ø IF B1> C1 AND C1> A1 THEN A=3:B=1:C=2
19Ø IF C1> A1 AND A1 > B1 THEN A=2:B=3:C=1
2ØØ IF C1> B1 AND B1> A1 THEN A=3:B=2:C=1
2Ø1 IF A1= B1 AND B1> C1 THEN A=1:B=1:C=3
2Ø2 IF A1= B1 AND C1 > B1 THEN A=3:B=3:C=1
2Ø3 IF B1= C1 AND C1 > A1 THEN A=3:B=1:C=1
2Ø4 IF B1= C1 AND A1> C1 THEN A=1:B=3:C=3
2Ø5 IF A1=C1 AND C1> B1 THEN A=1:C=1:B=3
2Ø6 IF A1=C1 AND B1> C1 THEN A=3:B=1:C=3
21Ø FOR I = 1 TO 2ØØ:NEXT
22Ø CLS:PRINT "TURTLE 1 CAME IN #";A
23Ø PRINT :PRINT "TURTLE 2 CAME IN #";B
24Ø PRINT :PRINT "TURTLE 3 CAME IN #";C
245 PRINT :PRINT :PRINT "PRESS ANY KEY TO GO ON"
25Ø A1=1:B1=1:C1=1:V4$=INKEY$:IF V4$= "" THEN 25Ø
255 GOTO 6ØØ
3ØØ CLS
31Ø PRINT "ENTER THE NUMBER OF PLAYERS (1-4)
32Ø A$=INKEY$:IF A$="" THEN 32Ø
33Ø D= VAL(A$):IF D< 1 OR D > 4 THEN 32Ø
34Ø FOR O= 1 TO D:D1(O)=5ØØ:NEXT O
35Ø GOSUB 8ØØ:W(1)=Ø:W(2)=Ø:W(3)=Ø:W(4)=Ø:FOR O = 1 TO D
353 IF D1(O)< 1 THEN NEXT
36Ø CLS:PRINT TAB(8);"LITTLE TURTLE";TAB(31);"FROG";TAB(52);"HON"
361 PRINT TAB(1Ø);"ODDS #1";TAB(3Ø);"ODDS #2";TAB(5Ø);"ODDS #3":PRINT TAB(1Ø);E2
$;TAB(3Ø);E3$;TAB(5Ø);E4$:PRINT :PRINT
363 IF O> D  THEN 9ØØ
365 PRINT "PLAYER #";O;" HAS $";D1(O)
37Ø PRINT "PLAYER #";O;" BETS ";
38Ø INPUT W
39Ø IF D1(O) -W < Ø THEN PRINT "YOU DONT HAVE THAT MUCH LEFT":GOTO 37Ø ELSE P6=D
1(O) -W:D1(O)=P6:W(O)=W
4ØØ PRINT:INPUT "ON TURTLE #";W1
41Ø IF W1<1 OR W1 >3 THEN 4ØØ
42Ø W2(O)= W1
43Ø NEXT
44Ø GOTO 1Ø
6ØØ CLS
61Ø FOR O = 1 TO D
614 IF W(O)=Ø THEN NEXT
615 IF O>D THEN 66Ø
62Ø IF W2(O) = 1 AND A= 1 THEN GOTO 7ØØ
```

```
63Ø IF W2(O) = 2 AND B= 1 THEN GOTO 7ØØ
64Ø IF W2(O) = 3 AND C= 1 THEN GOTO 7ØØ
645 PRINT "PLAYER #";O;" LOSES $";W(O):PRINT :PRINT
65Ø NEXT
66Ø PRINT "PRESS ANY KEY TO GO ON"
665 A$= INKEY$:IF A$ = "" THEN 665
667 GOTO 35Ø
7ØØ IF E1= W2(O) THEN P5= W(O)* 3 ELSE P5= W(O)* 2
71Ø PRINT "PLAYER #";O;" WINS $";P5
72Ø P7= D1(O)+ P5:D1(O)= P7
73Ø PRINT :PRINT :GOTO 65Ø
8ØØ E=VAL(RIGHT$(TIME$,2))
81Ø E2=13:E3=13:E4=13:E1= INT(RND(E)*7)+1
82Ø IF E1= 1 THEN E2=12:E2$=" 3 TO 1" ELSE E2$=  " 2 TO 1"
83Ø IF E1= 2 THEN E3 = 12:E3$=" 3 TO 1" ELSE E3$= " 2 TO 1"
84Ø IF E1= 3 THEN E4 = 12:E4$= " 3 TO 1" ELSE E4$= " 2 TO 1"
85Ø RETURN
9ØØ P7=Ø:FOR O = 1 TO D
91Ø IF D1(O) <1 THEN P7=P7+1
92Ø NEXT
923 FOR T = 1 TO D:IF W(T)> Ø THEN 94Ø
924 NEXT
93Ø IF P7 = D THEN CLS:END
94Ø GOTO 1Ø
1ØØØØ DIM A%(12ØØØ)
1ØØØ2  PSET ( 28Ø , 9Ø ), 6
1ØØØ4  PSET ( 317 , 9Ø ), 6
1ØØØ6  PSET ( 294 , 8Ø ), 6
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```
10008  PRESET ( 294 , 80 )
10010  PRESET ( 280 , 90 )
10012  CIRCLE ( 280 , 90 ), 37 , 0 , 1 , .27027 , 6
10014  PRESET ( 294 , 84 )
10016  PAINT ( 294 , 84 ), 6
10018  PSET ( 329 , 90 ), 2
10020  PSET ( 344 , 90 ), 2
10022  PSET ( 335 , 86 ), 2
10024  PRESET ( 335 , 86 )
10026  PRESET ( 329 , 90 )
10028  CIRCLE ( 329 , 90 ), 15 , 0 , 1 , .266667 , 2
10030  PRESET ( 335 , 89 )
10032  PAINT ( 335 , 89 ), 2
10034  PSET ( 341 , 89 ), 1
10036  PSET ( 341 , 90 ), 1
10038  PSET ( 341 , 92 ), 1
10040  PSET ( 341 , 90 ), 2
10042  PSET ( 341 , 91 ), 1
10044  PSET ( 341 , 88 ), 1
10046  PSET ( 340 , 88 ), 1
10048  PSET ( 340 , 89 ), 1
10050  PSET ( 340 , 91 ), 1
10052  PSET ( 340 , 92 ), 1
10054  PSET ( 237 , 91 ), 1
10056  PSET ( 237 , 91 ), 2
10058  PSET ( 244 , 91 ), 2
10060  PSET ( 241 , 89 ), 2
10062  PRESET ( 241 , 89 )
10064  PRESET ( 237 , 91 )
10066  CIRCLE ( 237 , 91 ), 7 , 0 , 1 , .285714 , 2
10068  PRESET ( 239 , 91 )
10070  PAINT ( 239 , 91 ), 2
10072  PSET ( 252 , 100 ), 2
10074  PSET ( 252 , 96 ), 2
10076  PRESET ( 252 , 100 )
10078  CIRCLE ( 252 , 100 ), 7.87402 , 0 , 1 , .508 , 2
10080  PSET ( 252 , 80 ), 2
10082  PSET ( 252 , 84 ), 2
10084  PRESET ( 252 , 80 )
10086  CIRCLE ( 252 , 80 ), 7.87402 , 0 , 1 , .508 , 2
10088  PSET ( 307 , 80 ), 2
10090  PSET ( 307 , 84 ), 2
10092  PRESET ( 307 , 80 )
10094  CIRCLE ( 307 , 80 ), 7.87402 , 0 , 1 , .508 , 2
10096  PSET ( 307 , 100 ), 2
10098  PSET ( 307 , 96 ), 2
10100  PSET ( 307 , 96 ), 2
10102  PSET ( 307 , 100 ), 2
10104  PSET ( 307 , 96 ), 2
10106  PRESET ( 307 , 100 )
10108  CIRCLE ( 307 , 100 ), 7.87402 , 0 , 1 , .508 , 2
10110  PRESET ( 307 , 99 )
10112  PAINT ( 307 , 99 ), 2
10114  PRESET ( 307 , 80 )
10116  PAINT ( 307 , 80 ), 2
10118  PSET ( 252 , 80 ), 2
10120  PRESET ( 252 , 80 )
10122  PAINT ( 252 , 80 ), 2
10124  PSET ( 252 , 100 ), 2
```

```
1Ø126  PRESET ( 252 , 1ØØ )
1Ø128  PAINT ( 252 , 1ØØ ), 2
1Ø13Ø  PSET ( 223 , 73 ), 2
1Ø132  PSET ( 352 , 11Ø ), 2
1Ø134  PRESET ( 352 , 11Ø )
1Ø136  PRESET ( 223 , 73 )
1Ø138  GET ( 223 , 73 )-( 352 , 11Ø ),A%
1Ø14Ø  PSET ( 27 , 78 ), 2
1Ø142  PUT ( 27 , 78 ),A%
1Ø144  PSET ( 4Ø2 , 78 ), 2
1Ø146  PUT ( 4Ø2 , 78 ),A%
1Ø148  PSET ( 84 , 94 ), 2
1Ø15Ø  PRESET ( 84 , 94 )
1Ø152  SYMBOL ( 8Ø , 9Ø ),"1", 1 , 1 , 4 ,Ø
1Ø154  PSET ( 461 , 94 ), 4
1Ø156  PRESET ( 461 , 94 )
1Ø158  SYMBOL ( 457 , 9Ø ),"3", 1 , 1 , 4 ,Ø
1Ø16Ø  PSET ( 282 , 89 ), 4
1Ø162  PRESET ( 282 , 89 )
1Ø164  SYMBOL ( 278 , 85 ),"2", 1 , 1 , 4 ,Ø
1Ø2ØØ ERASE A%
1Ø21Ø A = (((156- 17+ 1)+ 7)/ 8* (115- 78+ 1)* 3+ 4)/2+ 1
1Ø22Ø B = (((352- 213+ 1)+ 7)/ 8* (11Ø- 73+ 1)* 3+ 4)/2+ 1
1Ø23Ø C = (((531- 394+ 1)+ 7)/ 8* (115- 78+ 1)* 3+ 4)/2+ 1
1Ø24Ø DIM A%(A),B%(B),C%(C)
1Ø25Ø GET (17,78)-(156,115),A%
1Ø26Ø GET (213,73)-(352,11Ø),B%
1Ø27Ø GET (394,78)-(531,115),C%
1Ø28Ø CLS
1Ø285 CLS
1Ø29Ø SYMBOL (2ØØ,1),"TURTLE RACING",2,2,7
1Ø295 PRINT :PRINT :PRINT :PRINT "FIRST YOU WILL BE ASKED HOW MANY PLAYERS ARE I
N THE GAME"
1Ø3Ø5 PRINT "YOU CAN HAVE ONE TO FOR PLAYERS.  JUST PRESS ONE KEY (1-4) YOU DON'
T HAVE"
1Ø315 PRINT "TO PRESS THE RETURN KEY AFTER THE NUMBER"
1Ø325 PRINT :PRINT :PRINT "THEN EVERY PLAYER WILL HAVE A CHANCE TO BET ON A TURT
LE. "
1Ø335 PRINT "ENTER THE AMOUNT OF THE BET AND THEN PRESS THE RETURN KEY"
1Ø345 PRINT "THEN ENTER THE NUMBER OF THE TURTLE AND PRESS RETURN"
1Ø355 PRINT :PRINT :PRINT :PRINT "        PRESS ANY KEY TO GO ON"
1Ø36Ø A$= INKEY$:IF A$= "" THEN 1Ø36Ø
1Ø365 GOTO 3ØØ
```


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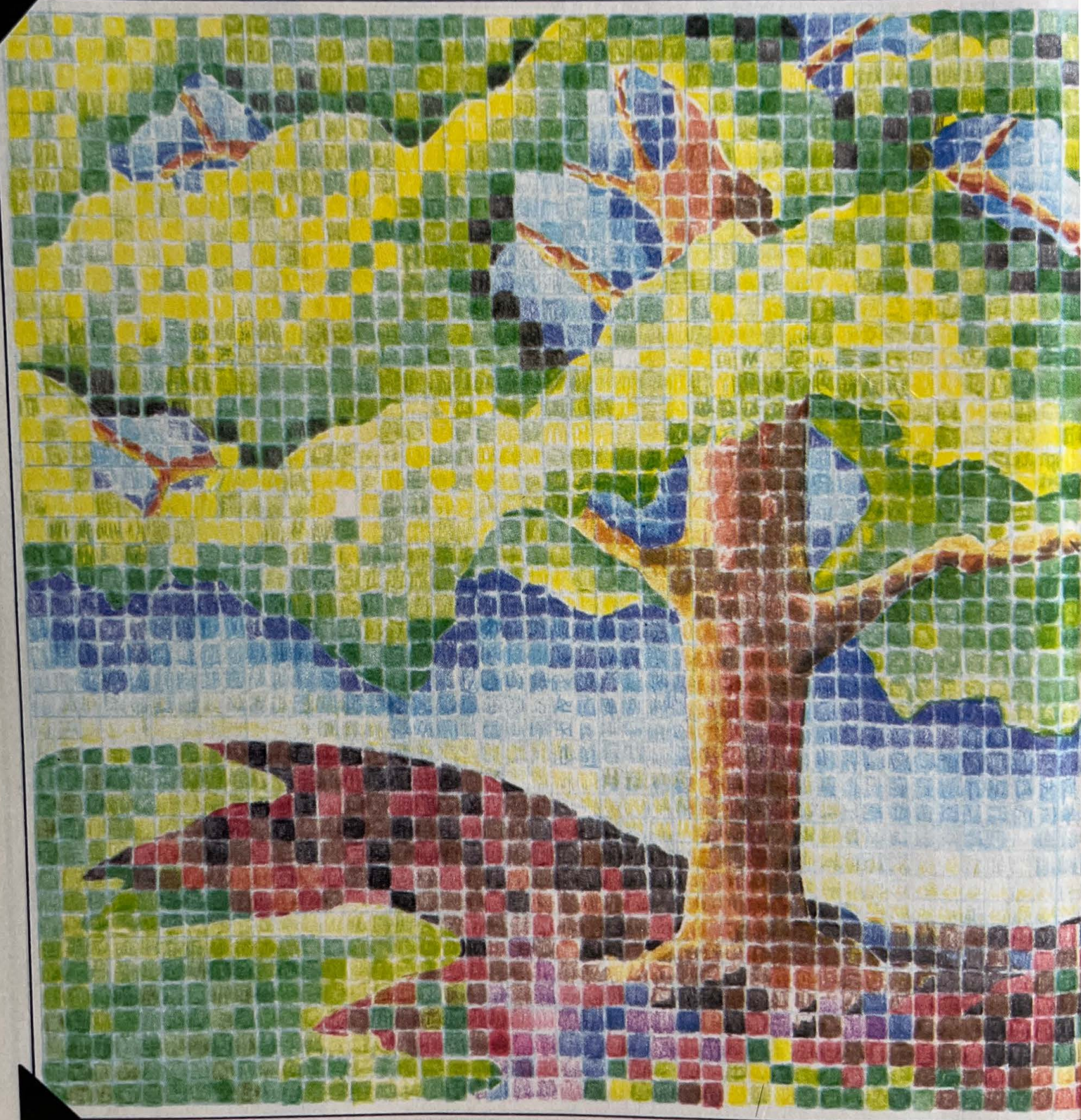

...ily Tree

Computer-aided genealogical research can enhance your ancestral portrait

By Edward Kerns

For years my relatives have been collecting information about the family ancestors, but I was always disinterested. When I got a computer I realized there were many ways I could aid their genealogical research. As I explored this application, I began to realize the fascination of learning about one's family history. As you learn more of the personal history of your ancestors, that dull family tree comes to life and brings new meaning to your personal search for identity.

Genealogy has grown to the fourth ranking hobby in the country and there are probably many owners of powerful personal computers who can, with a little guidance, aid themselves or family members in their research. This program will introduce you to genealogical research and provide a structure within which novice and experienced genealogists can apply personal computers.

How can a computer aid genealogists? The first aspect of searching one's roots is collection of vital statistics and descriptive information about individual persons. A dedicated data management

(Ed Kerns is an analytical chemist working in the field of pharmaceutical research and holds a master's degree in chemistry. He would enjoy letters from other genealogists who find this program useful. He may be contacted at 10428 Kristopher Court, Evansville, IN 47712.)

program and a word processor can easily record, organize and store this information better than paper, folders and index cards.

Next, the genealogist relates the data to produce pedigree and family charts. Again, the computer can be instructed to rapidly search the files for relationships between individuals and to construct and neatly print complicated charts that are tedious to maintain by hand. In short, the computer should do all the laborious work to free the user for the creative work of heritage research.

This program has been designed for ease of use with menu selection of operations and clearly defined operational blocks. The user enters information only once into a personal record for each individual. A personal record can be displayed or modified at any time and a list of all the persons in the file can be printed or inspected on the screen.

When instructed to prepare a chart, the program searches these records for relationships between individuals and requires little operator input. The printout can be easily configured for different printers because the printer codes are grouped together on Line 30. The BASIC code is blocked into separate functions to aid the user in modifying the program if desired.

For those who operate in GW-BASIC, three simple modifications will yield a fully functional program. When entering BASIC from DOS type, `BASIC /S:256` to set the random file I/O buffer capacity. Change the `WIDTH 132` statement in lines 610 and 1470 to `WIDTH "LPT1:",132`.

If you are new to genealogical research, here are some simple suggestions for beginning and organizing your work. Start by writing down all of the information you know about your ancestors. Check the fields defined in the program for some of the information you will need to collect about your relatives, like birthdate and location. Start a documentation notebook for initial recording of the information you collect; a three-ring binder is a good tool. Assign a unique number to each paper you keep for simple referencing later. Use the program to make personal records for each individual that will draw together all the information from different documents in your notebook.

Next, search for other pieces of information in your immediate possession like family Bibles, old letters or old records. Transfer this information to your notebook, then update your computer records using the modify option of the program. Next, check with relatives about information they remember or have in their possession.

Serious enthusiasts then begin to glean information from public records such as the census, birth certificates and marriage licenses. Most cities have a public library with a section that specializes in genealogical research where books, records and helpful personnel will aid your search. Use your favorite word processor to compile descriptive information about your ancestors, like occupation, personal activities or religion. Note the document source of each piece of information for later reference.

> *"For those who operate in GW-BASIC, three simple modifications will yield a fully functional program."*

In using the program you must enter a name in exactly the same way each time, including capitals. It may be best to always use capitals for each entry. If a personal record lists a person's middle name, but the record for his child lists him as father without the middle name, then the program's search routines will not properly recognize the relationship between father and child. Enter women by their maiden name.

When modifying a record or changing a record which was just entered, a carriage return leaves the displayed entry unchanged, and if you want to modify it, you must type in the whole new field. When you are presented with a yes or no question, entry of 'Y' will signal the program to provide the possible option and entry of any other key will signal a negative response. If you type in the program, you will find your job eased by defining the function keys as some of the commonly used key words, such as LPRINT and TAB. Consult Page 3-53 in your *Sanyo Operator's Guide* for how to do this.

If you find this program useful or you need additional guidance in using the program, I would be happy to hear from you by mail. If there is enough interest, the program could be further developed. In the interest of keeping this program short, several functions which have been written have not been listed. These include: searches of the data file for character strings, descendants chart, integrated text files on individuals and a research record tracker.

The listing: FAMILY.BAS

```
10 '"FAMILY"--GENEALOGY PROGRAM--COPYRIGHT 1985--EDWARD H.KERNS, EVANSVILLE, IN
20 DEFSTR B,D,F,M,N,S,V-Z,R:DEFINT C,E,G-L,O:DIM VI(21),VF(21),W(100),R(30,4),X(
15),XB(15),XBC(15),XD(15),XDC(15),XS(15),XSD(15),XF(15),XM(15),XX(15),XBCO(15),X
DCO(15):B="b. ":D="d. ":F="F. ":M="M. ":N="m. "
30 CF=12:CC=15:CN=18:'EPSON PRINT CODES:FORM FEED,COMPRESS,NORMAL(OKI:12,29,30)
40 'MAIN MENU
50   CLS:PRINT "FAMILY HISTORY--MAIN MENU":PRINT:PRINT"1. ADD PERSON"
60   PRINT"2. DISPLAY/MODIFY PERSONAL RECORD":PRINT"3. PEDIGREE CHART"
70   PRINT"4. FAMILY CHART":PRINT"5. LIST NAMES":PRINT"6. EXIT":PRINT
80   INPUT"ENTER OPTION: ",I:ON I GOSUB 90,400,560,1240,1520,1660:GOTO 40
90 'SUB ADD PERSON
100   GOSUB 1670
110   FOR J=1 TO 20:LSET VF(J)="":NEXT J:GOSUB 140:IF VI="***" THEN 130
120   CLS:INPUT "ADD ANOTHER PERSON (Y/N)";Y:IF Y="Y" THEN 110 ELSE CLOSE
130 RETURN
140 'SUB VITAL STATISTICS CHART
```

```
15Ø   GOSUB 2ØØ:LOCATE 23,1:PRINT"ENTER *** TO EXIT":GOSUB 28Ø:'CHART, ENTERIES
16Ø   IF VI="***" THEN CLOSE ELSE 18Ø
17Ø   GOTO 19Ø
18Ø   E=LOF(1)/256+1:GOSUB 37Ø: 'WRITE FILES
19Ø RETURN
2ØØ 'SUB PRINT CHART
21Ø   DATA Personal Record Of,Record #,,VITAL STATISTICS,,Birth Date (DD/MM/YYYY
),Birth City,Birth County,Birth State,Death Date,Death City,Death County,Death S
tate,Mother,Father,Spouse,Marriage Date,Marriage City,Marriage County,Marriage S
tate,Sex,,
22Ø   CLS:RESTORE 21Ø:FOR J=1 TO 23:READ V:PRINT V:NEXT J
23Ø   IF I=1 THEN LOCATE 2,24:PRINT LOF(1)/256+1
24Ø   DATA 35,1Ø,15,12,2,1Ø,15,11,2,35,35,35,1Ø,15,11,2,1
25Ø   RESTORE 24Ø:FOR J=1 TO 21:IF J>1 AND J<6 THEN 27Ø
26Ø   LOCATE J,25:READ LE:PRINT STRING$(LE,CHR$(176))
27Ø   NEXT J:RETURN
28Ø 'SUB ENTER DATA
29Ø   FOR J=1 TO 21:LOCATE J,25:IF J>1 AND J<6 THEN 33Ø
3ØØ   INPUT "",VI:IF VI="***" THEN 36Ø
31Ø   IF I=1 AND VI="" THEN VI(J)=VF(J) ELSE VI(J)=VI
32Ø   IF I=2 AND VI="" THEN VI(J)=VF(J) ELSE IF I=2 THEN VI(J)=VI
33Ø   NEXT J
34Ø   PRINT:INPUT "CHANGE ENTRIES (Y/N)";Y:LOCATE 23,1:PRINT STRING$(25," ")
35Ø   IF Y<>"Y" THEN 36Ø ELSE FOR J=1 TO 21:LSET VF(J)=VI(J):NEXT J:GOTO 29Ø
36Ø RETURN
37Ø 'SUB WRITE TO FILE
38Ø   FOR J=1 TO 21:LSET VF(J)=VI(J):NEXT J
39Ø   PUT 1,E:LSET VN=VI(1):PUT 2,E:RETURN:'WRITE VITAL FILE & NAME INDEX
4ØØ 'SUB DISPLAY/MODIFY PERSONAL RECORD
41Ø   CLS:X="":GOSUB 167Ø
42Ø   PRINT"MENU":PRINT:PRINT"1. DISPLAY":PRINT"2. MODIFY":PRINT"3. EXIT"
43Ø   PRINT:INPUT"ENTER OPTION: ",O:PRINT:IF O=3 THEN 54Ø
44Ø   IF O<1 OR O>3 THEN CLS:GOTO 42Ø
45Ø   INPUT"ENTER NAME (NUMBER) OF PERSON: ",X:IF VAL(X)>LOF(1)/256 THEN 42Ø
46Ø   IF VAL(X)>Ø THEN E=VAL(X):GOTO 48Ø
47Ø   K=Ø:E=1:GOSUB 171Ø:IF K=1 THEN CLS:GOSUB 175Ø:PRINT:GOTO 42Ø
48Ø   FOR J=1 TO 21:LSET VF(J)="":NEXT J:GOSUB 2ØØ:GOSUB 177Ø:'CHART,RECORD
49Ø   IF O=2 THEN GOSUB 28Ø ELSE 51Ø
5ØØ   GOSUB 37Ø
51Ø   LOCATE 23,1:INPUT"SEND TO PRINTER (Y/N)";Y:IF Y="Y" THEN GOSUB 182Ø
52Ø   INPUT "ANOTHER RECORD (Y/N)";Y:IF Y<>"Y" THEN CLS:GOTO 42Ø
53Ø   IF Y="Y" THEN GOTO 45Ø
54Ø   CLOSE
55Ø RETURN
56Ø 'SUB PEDIGREE CHART
57Ø   CLS:PRINT"FOUR GENERATION PEDIGREE CHART":GOSUB 167Ø: 'OPEN FILES
58Ø   PRINT:INPUT"ENTER NAME OF PERSON (*** TO EXIT): ",X:IF X="***" THEN 1Ø2Ø
59Ø   PRINT:PRINT"TRACING PEDIGREE, PRINTING SOON":PRINT:GOSUB 1Ø4Ø:'ANCESTORS
6ØØ   IF K=1 AND G=Ø THEN 1Ø1Ø
61Ø   LPRINT CHR$(CC):WIDTH 132: 'PRINT PEDIGREE CHART
62Ø   LPRINT"PEDIGREE CHART";TAB(91) X(7)
63Ø   LPRINT TAB(93) B;XB(7),N;XSD(7):LPRINT TAB(96) XBC(7)
64Ø   LPRINT TAB(93) D;XD(7):LPRINT TAB(61) X(3);TAB(96) XDC(7)
65Ø   LPRINT TAB(61) B;XB(3);TAB(93) F;XF(7)
66Ø   LPRINT TAB(64) XBC(3);TAB(93) M;XM(7):LPRINT TAB(61) D;XD(3)
67Ø   LPRINT TAB(64) XDC(3);TAB(91) X(8)
68Ø   LPRINT TAB(61) N;XSD(3);TAB(93) B;XB(8):LPRINT TAB(96) XBC(8)
69Ø   LPRINT TAB(93) D;XD(8):LPRINT,,X(1);TAB(96) XDC(8)
7ØØ   LPRINT,,B;XB(1);TAB(93) F;XF(8):LPRINT TAB(36) XBC(1);TAB(93) M;XM(8)
```

```
71Ø   LPRINT,,D;XD(1);TAB(91) STRING$(35,"-")
72Ø   LPRINT TAB(36) XDC(1);TAB(91) X(9)
73Ø   LPRINT,,N;XSD(1);TAB(93) B;XB(9),N;XSD(9):LPRINT TAB(96) XBC(9)
74Ø   LPRINT TAB(93) D;XD(9):LPRINT TAB(61) X(4);TAB(96) XDC(9)
75Ø   LPRINT TAB(61) B;XB(4);TAB(93) F;XF(9)
76Ø   LPRINT TAB(64) XBC(4);TAB(93) M;XM(9):LPRINT TAB(61) D;XD(4)
77Ø   LPRINT TAB(64) XDC(4);TAB(91) X(1Ø):LPRINT TAB(93) B;XB(1Ø)
78Ø   LPRINT TAB(96) XBC(1Ø):LPRINT TAB(93) D;XD(1Ø)
79Ø   LPRINT X(Ø);TAB(96) XDC(1Ø):LPRINT B;XB(Ø);TAB(93) F;XF(1Ø)
8ØØ   LPRINT TAB(4) XBC(Ø);TAB(93) M;XM(1Ø)
81Ø   LPRINT D;XD(Ø);TAB(91) STRING$(35,"-")
82Ø   LPRINT TAB(4);XDC(Ø);TAB(91) X(11)
83Ø   LPRINT N;XSD(Ø);TAB(93) B;XB(11),N;XSD(11)
84Ø   LPRINT TAB(4);XS(Ø);TAB(96) XBC(11):LPRINT TAB(93) D;XD(11)
85Ø   LPRINT TAB(61) X(5);TAB(96) XDC(11)
86Ø   LPRINT TAB(61) B;XB(5);TAB(93) F;XF(11)
87Ø   LPRINT TAB(64) XBC(5);TAB(93) M;XM(11):LPRINT TAB(61) D;XD(5)
88Ø   LPRINT TAB(64) XDC(5);TAB(91) X(12)
89Ø   LPRINT TAB(61) N;XSD(5);TAB(93) B;XB(12):LPRINT TAB(96) XBC(12)
9ØØ   LPRINT TAB(93) D;XD(12):LPRINT,,X(2);TAB(96) XDC(12)
91Ø   LPRINT,,B;XB(2);TAB(93) F;XF(12):LPRINT TAB(36) XBC(2);TAB(93) M;XM(12)
92Ø   LPRINT,,D;XD(2);TAB(91) STRING$(35,"-")
93Ø   LPRINT TAB(36) XDC(2);TAB(91) X(13):LPRINT TAB(93) B;XB(13),N;XSD(13)
94Ø   LPRINT TAB(96) XBC(13):LPRINT TAB(93) D;XD(13)
95Ø   LPRINT TAB(61) X(6);TAB(96) XDC(13)
96Ø   LPRINT TAB(61) B;XB(6);TAB(93) F;XF(13)
97Ø   LPRINT TAB(64) XBC(6);TAB(93) M;XM(13):LPRINT TAB(61) D;XD(6)
98Ø   LPRINT TAB(64) XDC(6);TAB(91) X(14):LPRINT TAB(93) B;XB(14)
99Ø   LPRINT TAB(96) XBC(14):LPRINT TAB(93) D;XD(14):LPRINT TAB(96) XDC(14)
1ØØØ   LPRINT TAB(93) F;XF(14):LPRINT TAB(93) M;XM(14);CHR$(CF);CHR$(CN)
1Ø1Ø   PRINT:INPUT"PREPARE ANOTHER CHART (Y/N)";Y:IF Y="Y" THEN 58Ø
1Ø2Ø   CLOSE
1Ø3Ø RETURN
1Ø4Ø 'SUB SEARCH VITAL FILES FOR ANCESTORS
1Ø5Ø   G=Ø:GOSUB 11ØØ:IF K=1 THEN 1Ø9Ø: 'FIND PERSON'S VITAL STATS
1Ø6Ø   G=1:H=Ø
1Ø7Ø   X=XF(H):GOSUB 11ØØ:G=G+1:X=XM(H):GOSUB 11ØØ:IF G=14 THEN 1Ø9Ø
1Ø8Ø   G=G+1:H=H+1:GOTO 1Ø7Ø
1Ø9Ø RETURN
11ØØ 'SUB FIND PERSON'S VITAL STATS
111Ø   IF X<>"" THEN 113Ø
112Ø   X(G)="":GOSUB 12ØØ:GOTO 119Ø: 'IF ANCESTOR NOT LISTED
113Ø   K=Ø:E=1:GOSUB 171Ø:IF K=Ø THEN 115Ø ELSE GOSUB 12ØØ:'FIND RECORD NUMBER
114Ø   GOTO 119Ø
115Ø   GET 1,E
116Ø   XB(G)=VF(6):XBC(G)=VF(7)+" "+VF(9):XD(G)=VF(1Ø):XBCO(G)=VF(8)
117Ø   XDC(G)=VF(11)+" "+VF(13):XDCO(G)=VF(12):XF(G)=VF(15):XM(G)=VF(14)
118Ø   XSD(G)=VF(17):XS(G)=VF(16):X(G)=VF(1):XX(G)=VF(21)
119Ø RETURN
12ØØ 'SUB IF PERSON NOT FOUND
121Ø   X(G)=X:XB(G)="":XBC(G)="":XD(G)="":XDC(G)="":XF(G)="":XM(G)=""
122Ø   XS(G)="":XSD(G)="":XBCO(G)="":XDCO(G)="":XX(G)=""
123Ø RETURN
124Ø 'SUB FAMILY CHART
125Ø   CLS:PRINT"FAMILY CHART":GOSUB 167Ø: 'OPEN FILES
126Ø   PRINT:INPUT"ENTER NAME (NUMBER) OF HUSBAND OF FAMILY (*** TO EXIT): ",X
127Ø   IF X="***" THEN 151Ø:PRINT:PRINT"TRACING FAMILY, PRINTING SOON"
128Ø   IF VAL(X)>Ø THEN E=VAL(X) ELSE 13ØØ
129Ø   IF VAL(X)>LOF(1)/256 THEN 126Ø ELSE GOTO 131Ø
```

```
13ØØ   K=Ø:E=1:GOSUB 171Ø:IF K=1 THEN 151Ø: 'FIND (HUSBAND'S) RECORD NUMBER
131Ø   G=Ø:GOSUB 115Ø: 'GET (HUSBAND'S) RECORD
132Ø   G=1:K=Ø:E=1:X=XS(Ø):GOSUB 171Ø: 'FIND (WIFE'S) RECORD NUMBER
133Ø   IF K=1 THEN GOSUB 12ØØ: 'IF (WIFE) NOT FOUND
134Ø   IF K=Ø THEN GOSUB 115Ø: 'GET (WIFE'S) RECORD
135Ø   G=2:FOR E=1 TO LOF(1)/256: 'FIND CHILDREN
136Ø   X=X(Ø):GET 1,E:IF INSTR(VF(15),X)>Ø THEN 137Ø ELSE 139Ø
137Ø   GOSUB 116Ø: 'GET (CHILD'S) RECORD
138Ø   G=G+1
139Ø   NEXT E
14ØØ   LPRINT:LPRINT:LPRINT,"FAMILY CHART":LPRINT:LPRINT,"HUSBAND: ";X(Ø)
141Ø   LPRINT,,B;XB(Ø):LPRINT TAB(36) XBC(Ø),"c. ";XBCO(Ø):LPRINT,,D;XD(Ø)
142Ø   LPRINT TAB(36) XDC(Ø),"c. ";XDCO(Ø):LPRINT,,N;XSD(Ø):LPRINT,,F;XF(Ø)
143Ø   LPRINT,,M;XM(Ø):LPRINT:LPRINT,"WIFE: ";X(1):LPRINT,,B;XB(1)
144Ø   LPRINT TAB(36) XBC(1),"c. ";XBCO(1):LPRINT,,D;XD(1)
145Ø   LPRINT TAB(36) XDC(1),"c. ";XDCO(1):LPRINT,,F;XF(1):LPRINT,,M;XM(1)
146Ø   LPRINT:LPRINT TAB(14)"Children";TAB(35) "Born","Married";TAB(67) "Died"
147Ø   LPRINT:LPRINT CHR$(CC):WIDTH 132:FOR CH=2 TO G-1
148Ø   LPRINT TAB(23) X(CH);TAB(59) XB(CH);TAB(78) XSD(CH);TAB(113) XD(CH)
149Ø   LPRINT TAB(25) XX(CH);TAB(59) XBC(CH);TAB(78) XS(CH);TAB(113) XDC(CH)
15ØØ   NEXT CH:LPRINT CHR$(CN);CHR$(CF)
151Ø   CLOSE:RETURN
152Ø 'SUB LIST NAME INDEX
153Ø   CLS:PRINT"LIST NAME INDEX":PRINT:PRINT"1. LIST TO SCREEN":
154Ø   PRINT"2. LIST TO PRINTER":PRINT"3. EXIT":PRINT:INPUT"ENTER OPTION: ",O
155Ø   IF O=3 THEN 165Ø
156Ø   IF O<>1 AND O<>2 THEN 153Ø
157Ø   IF O=2 THEN LPRINT:LPRINT TAB(1Ø)"INDEX OF PERSONS ON FILE":LPRINT
```


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```
158Ø   GOSUB 17ØØ: 'OPEN NAME FILE
159Ø   J=1:H1=LOF(2)/35:FOR H=1 TO H1:GET 2,H
16ØØ   IF O=1 THEN PRINT H;". ";VN
161Ø   IF O=2 THEN LPRINT TAB(1Ø) H;". ";VN
162Ø   IF O=1 AND J=22 THEN PRINT"HIT ANY KEY TO CONTINUE":Z1=INPUT$(1):J=Ø
163Ø   J=J+1:NEXT:CLOSE:IF O=1 THEN PRINT"HIT ANY KEY TO EXIT":Z1=INPUT$(1)
164Ø   IF O=2 THEN LPRINT CHR$(CF)
165Ø RETURN
166Ø END
167Ø 'SUB OPEN FILES
168Ø   OPEN "R",1,"VITAL.FAM",256
169Ø   FIELD 1,35 AS VF(1),1Ø AS VF(6),15 AS VF(7),12 AS VF(8),2 AS VF(9),1Ø AS
VF(1Ø),15 AS VF(11),11 AS VF(12),2 AS VF(13),35 AS VF(14),35 AS VF(15),35 AS VF(
16),1Ø AS VF(17),15 AS VF(18),11 AS VF(19),2 AS VF(2Ø),1 AS VF(21)
17ØØ   OPEN "R",2,"NAME.FAM",35:FIELD 2,35 AS VN:RETURN
171Ø 'SUB FIND RECORD NUMBER
172Ø   GET 2,E:IF INSTR(VN,X)>Ø THEN 176Ø
173Ø   IF E<LOF(2)/35 THEN E=E+1 ELSE 175Ø
174Ø   GOTO 172Ø
175Ø   PRINT X;" NOT FOUND IN FILE":K=1
176Ø RETURN
177Ø 'SUB PRINT VITAL FILE
178Ø   GET 1,E:FOR J=1 TO 21:LOCATE J,25:IF J=2 THEN PRINT E
179Ø   IF J>2 AND J<6 THEN 181Ø
18ØØ   PRINT VF(J)
181Ø   NEXT J:RETURN
182Ø 'SUB SEND TO LINE PRINTER
183Ø   VF(2)=STR$(E):RESTORE 21Ø:LPRINT:LPRINT:FOR J=1 TO 21:READ V
184Ø   LPRINT TAB(1Ø) V;TAB(35) VF(J):NEXT J:LPRINT CHR$(CF):RETURN
```


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BatBall

By Matthew Freeman

256K Required

After doing a lot of programming in Sanyo BASIC, I soon tired of having to draw my own characters using the various graphics commands and then finally having to use the GET command. I decided I would experiment trying to alter the actual characters. This had to be done using the commands, POKE, CALL, etc.

I looked back through my SOFT SECTOR library and came across a rather fascinating article written by J. Weaver Jr. (September '84) and an accompanying program, FONT.BAS. It was this program which helped me figure out how to change the characters. Although it took me a while to work it all out, I eventually had my own characters generated through POKEing data into memory. It is advised that you type all of the listing in up to Line 470 before even attempting to run it. Otherwise, errors may result in Line 150 because of the CLEAR command. If so, simply type RUN again (read on for more on the character altering routine).

(Matthew Freeman is a 14-year-old high school student who has had his Sanyo for over a year. He enjoys programming in BASIC on the Sanyo and the BBC Microcomputer and programming in 6502 assembly language.)

The Game

BatBall is a colorful and exciting graphics game. You are in control of a deflector shield which you must control using the left- and right-arrow keys. You must maneuver your shield to deflect bombs from your city. You must keep deflecting these bombs until your time runs out, at which point you will advance to another level with one extra bomb to deflect. Each time you miss a bomb your city will lose some energy. When your energy reaches zero you are finished, the game ends and your city blows up. Time and energy are displayed on the left-hand side of the screen along with the level number. Upon completion of a level, you will be awarded 250 points which is displayed on the bottom right-hand corner of the screen. Each bomb you deflect will earn you 50 points. If at any time you wish to pause the game, just press the spacebar. Once the game is over you will (if your score qualifies), be able to enter your name on the Hi-Score table. To exit the program type Q at the prompt in Line 1340.

A few hints I will give you while playing *BatBall*: Whenever you are at one side of the screen and you must move to the other, it is quicker to just go through the boundaries as you will come out the other side. Occasionally you may encounter "random bouncing" — watch out!

The Character Creating Routine

In *BatBall* I have only altered a few characters to make things quick and simple. I have included REM statements in the listing to give you some idea on the procedures. Before the characters can be altered they must be taken out of high ROM and brought down into high RAM. The routine to do this is shown in lines 150 through 230, the data being a small assembly language routine. From here on it's simple!

Before you start designing your characters, you must first draw up an eight-by-eight grid and mark in the squares that you want to be shown on your character. To make things simple, label the grid A, B, C, etc. down the left-hand side; you should end up at H. Now label across the top starting at 128 and dividing by two, the eighth square should have a '1' above it. You may need a calculator for the next bit in which you must add the totals for the DATA statements. Start with Row A and add the values of the squares you marked in, the values, of course, being directly above the square. (Note: You cannot do more than one character at a time, as each character needs eight figures for the data.) You should now have eight numbers, one for each row. The next step is POKEing the DATA in at the right locations. Each character takes up to eight locations (e.g., characters 0 through 15 can be replaced using locations 0 through 127 and each character will take eight).

The listing: BATBALL.BAS

```
1Ø REM  Batball   by M.Freeman  , September 1985
2Ø REM                                          ----------------------
3Ø REM  Address ;   77 2Øth st                  - This program is for -
4Ø REM              Renmark.  S.A.  5341        -  personal use only  -
5Ø REM              Australia                   ----------------------
6Ø REM
7Ø ST=&H11D
8Ø COLOR 3,1:CLS:DEFINT A-Z:DEFSTR N:DIM ZZ(7)
9Ø REM
1ØØ REM ----------------Start of Character modifying routine-----------------
11Ø REM
12Ø REM It is advised that you read the write-up on this program before
13Ø REM                 before attempting to type in and run.
```

```
14Ø REM
15Ø CLEAR 2ØØ,1ØØØ:RESTORE 22Ø:MARK1=&H1ØA4:MARK2=&H3CØØ:DEF SEG=&HF4ØØ
16Ø LOCATE 1,1,Ø:POKE Ø,192:CLS
17Ø DEF SEG=SEG(4):FOR SA=&HØ TO &H2A:READ N:SB=VAL("&H"+N)
18Ø POKE SA,SB:NEXT SA:CALL Ø:ZZ=SEG(4)-24Ø:DEF SEG=&H4Ø:REM  Bringing Chars --
19Ø POKE MARK1,ZZ-INT(ZZ/256)*256:POKE MARK1+1,INT(ZZ/256):REM   into RAM    --
2ØØ REM
21Ø REM
22Ø DATA 1e,6,56,57,5Ø,51,b8,Ø,ff,8e,d8,8c,c8,8e,cØ,be,Ø,Ø,bf,Ø,1,b9
23Ø DATA Ø,4,f3,a5,b8,4Ø,Ø,8e,d8,9Ø,9Ø,9Ø,9Ø,9Ø,59,58,5f,5e,7,1f,cb
24Ø REM
25Ø REM
26Ø DEF SEG=SEG(4)+16
27Ø FOR SB=12Ø TO 255:READ SA:POKE SB,SA:JJ=JJ+SA:NEXT SB
28Ø IF JJ<>14135 THEN GOTO 29Ø ELSE GOTO 3ØØ:REM Loading Character DATA -------
29Ø PRINT "!!!!!!!! DATA ERROR , RECHECK !!!!!!!!":END
3ØØ REM
31Ø REM
32Ø DATA 255,128,128,252,192,192,192,Ø
33Ø DATA 66,68,4Ø,24,7,Ø,Ø,Ø,6,2,4,24,224
34Ø DATA Ø,Ø,Ø,Ø,Ø,224,24,4,2,249,5
35Ø DATA Ø,Ø,7,24,32,64,129,13Ø,255,Ø
36Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,6Ø,66,129,129
37Ø DATA 66,6Ø,Ø,252,132,254,194,194,194
38Ø DATA 254,Ø,13Ø,13Ø,198,254,56,56,56,Ø
39Ø DATA 254,146,146,194,194,194,194,Ø,252
4ØØ DATA 14Ø,132,254,194,194,194,Ø,254,128
41Ø DATA 128,254,192,192,254,Ø,124,68,68
42Ø DATA 254,194,194,194,Ø,254,13Ø,13Ø
43Ø DATA 194,194,194,194,Ø,8,24,48,1Ø2,252
44Ø DATA 24,48,64,65,36,9,146,146,9,36,65
45Ø DATA 13Ø,36,144,73,73,144,36,13Ø
46Ø REM
47Ø REM ------------------------------------------------------------------
48Ø REM
49Ø CLEAR ,,12ØØ
5ØØ DEF SEG=&H4Ø:FOR SA=&H1ØØ TO &H13B
51Ø READ N:SB=VAL("&H"+N):POKE SA,SB
52Ø NEXT SA:POKE ST,8:REM  Loading of Sound Routine into memory---------------
53Ø REM
54Ø REM
55Ø DATA eb,2,Ø,Ø,fa,8b,ec,1e,c5,5e,8,8b,f,c5,5e,4,8b,17,e,1f,2e,89
56Ø DATA e,2,1,b8,35,Ø,34,8,e6,3a,fe,cc,75,3,4a,74,9,e2,f7,2e,8b,e,2
57Ø DATA 1,eb,ec,34,8,3c,35,75,2,e6,3a,1f,ca,8,Ø
58Ø REM
59Ø REM ------------------------------------------------------------------
6ØØ REM
61Ø COLOR 3,Ø:FOR A=11 TO 6Ø:LOCATE 4,A:PRINT CHR$(2Ø5):NEXT
62Ø FOR A=5 TO 23:LOCATE A,1Ø:PRINT CHR$(186):LOCATE A,61:PRINT CHR$(186)
63Ø NEXT:FOR G=1 TO 4:READ F,B,D:LOCATE F,B:PRINT CHR$(D):NEXT
64Ø DATA 4,1Ø,2Ø1,4,61,187,24,1Ø,2ØØ,24,61,188:FOR A=11 TO 6Ø:LOCATE 24,A
65Ø PRINT CHR$(2Ø5):NEXT:VIEW(8Ø,3Ø)-(479,184),Ø,2:VIEW(1,1)-(639,199)
66Ø LINE(8Ø,3Ø)-(479,184),Ø,B
67Ø RESTORE 69Ø:DIM N$(1Ø),S(1Ø):THI=Ø:LOCATE 2,43:COLOR Ø,Ø:PRINT " ";
68Ø LOCATE 2,44:FOR BB=1 TO 18:READ G:COLOR 6,Ø:PRINT CHR$(G);" ";:NEXT
69Ø DATA 29,29,Ø,22,23,Ø,24,46,15,25,26,26,24,27,28,Ø,29,29
7ØØ COLOR 5,1:LOCATE 5,1:PRINT" WELCOME":PRINT "   TO":PRINT" BATBALL"
71Ø FOR A=1 TO 5:SYMBOL(2+A,1+A),"Batball",3,2,6:NEXT A
72Ø SYMBOL(3+A,2+A),"Batball",3,2,4:B$=CHR$(19)+CHR$(18):A$=CHR$(16)+CHR$(17)
```

```
73Ø LOCATE 1,25:COLOR 7,1:PRINT B$:LOCATE 2,25:PRINT A$:PAINT(2ØØ,8),2,7
74Ø PAINT(2ØØ,4),2,7:DIM O(6ØØ):GET(19Ø,1)-(21Ø,13),O
75Ø OPEN "R",#1,"BATHI'S.FIL",5Ø:FIELD #1,2 AS J$,4 AS H$,8 AS I$
76Ø IF LOF(1)=Ø THEN GOTO 8ØØ
77Ø FOR A=1 TO 1Ø:RSET J$=MKI$(A):LSET H$=N$(A):RSET I$=MKD$(S(A))
78Ø GET #1,A:N$(A)=H$:S(A)=CVD(I$):NEXT A:CLOSE
79Ø GOTO 85Ø
8ØØ RESTORE 83Ø:FOR A=1 TO 1Ø:READ N$(A):READ S(A)
81Ø RSET J$=MKI$(A):LSET H$=N$(A):RSET I$=MKD$(S(A))
82Ø PUT #1,A:NEXT:CLOSE #1
83Ø DATA "SOFT",75ØØ,"SECT",4Ø5Ø,"....",375Ø,"MATT",24ØØ,"BEN",21ØØ,"RICK",2Ø5Ø
84Ø DATA "SCOT",19ØØ,"TOMO",18ØØ,"ANDY",35Ø,"TELF",1ØØ
85Ø LOCATE 4,63:COLOR 5,1:PRINT "Batball Hi Scores":COLOR 4,1
86Ø LINE(5ØØ,15Ø)-(625,19Ø),5,BF:LINE(515,16Ø)-(61Ø,182),Ø,BF
87Ø FOR A=1 TO 1Ø:LOCATE 5+A,64:PRINT N$(A):LOCATE 5+A,74:PRINT S(A)
88Ø NEXT:LINE(5ØØ,12Ø)-(625,145),3,BF:LINE(51Ø,13Ø)-(615,14Ø),Ø,BF
89Ø SYMBOL(515,121),"Today's High",1,1,5:SYMBOL(525,132),"ØØØØØ",2,1,7
9ØØ LOCATE 9,2:COLOR 2,1:PRINT "Level";:COLOR 6,1:PRINT LEV
91Ø LOCATE 8,1:COLOR 3,1:PRINT"=========":LOCATE 1Ø,1:PRINT"========="
92Ø RESTORE 95Ø:LOCATE 24,1:COLOR 3,1:PRINT"========="
93Ø FOR AX=95 TO 155 STEP 2Ø:READ F$:SYMBOL(5,AX),F$,2,1,4:NEXT
94Ø FOR AX=85 TO 177 STEP 17:READ F$:SYMBOL(35,AX),F$,2,1,4:NEXT
95Ø DATA T,I,M,E,E,N,E,R,G,Y
96Ø FOR AY=11 TO 23:COLOR 3,1:LOCATE AY,9:PRINT"-":NEXT AY
97Ø FOR D=23 TO 24-13 STEP -1:COLOR 6,1:LOCATE D,4
98Ø PRINT CHR$(219);:NEXT:NN$=CHR$(2Ø)+CHR$(2Ø)+CHR$(2Ø)+CHR$(2Ø)
99Ø FOR D=23 TO 24-13 STEP -1:LOCATE D,8:PRINT CHR$(219);:NEXT
1ØØØ LINE(79,172)-(79,184),2:LINE(479,172)-(479,184),2
1Ø1Ø RESTORE 1Ø3Ø:FOR A=1 TO 16:READ X1,Y1,X2,Y2:LINE(X1,Y1)-(X2,Y2),2,B
1Ø2Ø GOSUB 138Ø:PAINT(X1+1,Y1+1),3,2:NEXT A
1Ø3Ø DATA 85,169,1Ø5,184,1Ø5,154,145,184,145,175,175,184,175,17Ø,19Ø,184
1Ø4Ø DATA 19Ø,16Ø,2Ø5,184,2Ø5,15Ø,225,184,225,155,255,184,255,17Ø,295,184
1Ø5Ø DATA 295,165,315,184,315,175,33Ø,184,33Ø,17Ø,339,184,339,16Ø,359,184
1Ø6Ø DATA 359,17Ø,4ØØ,184,4ØØ,16Ø,42Ø,184,42Ø,175,435,184,435,155,475,184
1Ø7Ø RESTORE 111Ø
1Ø8Ø FOR A=1 TO 1Ø:READ X1,Y1,X2,Y2,X3,Y3:LINE(X1,Y1)-(X2,Y2),2
1Ø9Ø LINE -(X3,Y3),2:PAINT(X2+1,Y2+1),2,2:NEXT A
11ØØ FOR Z=1ØØ TO 45Ø STEP 5Ø:LINE(Z,18Ø)-(Z+2,184),Ø,BF
111Ø DATA 85,169,8Ø,17Ø,8Ø,172,1Ø5,154,88,16Ø,88,169,175,17Ø,167,173,167,175
112Ø DATA 19Ø,16Ø,183,164,183,17Ø,2Ø5,15Ø,198,154,198,16Ø,295,165,288,168,288
113Ø DATA 17Ø,33Ø,17Ø,325,173,325,175,339,16Ø,333,164,333,17Ø,4ØØ,16Ø,39Ø,165
114Ø DATA 39Ø,17Ø,435,155,42Ø,16Ø,42Ø,161
115Ø LINE(Z-4,18Ø)-(Z,181),Ø,BF:CIRCLE(Z-4,182),2,,,,6:NEXT Z:DIM CB(3ØØØ)
116Ø DIM C(3ØØØ):GET(8Ø,15Ø)-(475,185),C:SYMBOL(515,152)," Your Score",1,1,3
117Ø GET(8Ø,15Ø)-(475,185),CB:SYMBOL(525,165),"ØØØØØ",2,2,7:DIM M(6ØØ)
118Ø CIRCLE(28Ø,1ØØ),2Ø,,,,.1,3:PAINT(28Ø,1ØØ),3,3:L=6
119Ø FOR A=1 TO 5:CIRCLE(273,1Ø5),A,,,,L:CIRCLE(287,1Ø5),A,,,,L:L=4:NEXT A
12ØØ LINE(27Ø,1Ø3)-(262,1Ø5),7:LINE(29Ø,1Ø3)-(298,1Ø5),7
121Ø LINE(28Ø,1ØØ)-(28Ø,91),3:FOR A=26Ø TO 3ØØ STEP 4:PSET(A,1ØØ),Ø
122Ø PSET(A,1Ø1),Ø:NEXT A
123Ø GET(26Ø,8Ø)-(3ØØ,12Ø),M:LINE(26Ø,8Ø)-(3ØØ,12Ø),Ø,BF:DIM BO(5ØØ):Z=1Ø
124Ø LOCATE 7,14:COLOR 4,Ø:PRINT CHR$(3Ø);CHR$(31);:GET(1ØØ,46)-(12Ø,55),BO
125Ø LINE(1ØØ,46)-(12Ø,55),Ø,BF:DIM X(15ØØ),BX(Z),BY(Z),BA(Z),BB(Z),J(5),LM(7)
126Ø LOCATE 1Ø,21:COLOR 5,Ø:PRINT"Full Instructions given in your":Z=1
127Ø LOCATE 12,21:PRINT"     SOFT SECTOR magazine."
128Ø FOR REP=1 TO 9ØØ:COLOR 6,Ø:LOCATE 17,23:PRINT"Press <SPACE-BAR> to start"
129Ø                          LOCATE 18,23:PRINT"    Press `Q` to exit"
13ØØ COLOR 7,1:LOCATE 25,2:PRINT"For movement use the arrow keys";
131Ø PUT(19Ø,1),O
```

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```
132Ø F=INT(RND*7+1):COLOR F,1:LOCATE 5,1:PRINT" WELCOME":PRINT"    TO"
133Ø PRINT" BATBALL":LINE(19Ø,1)-(21Ø,13),1,BF:PUT(19Ø,8),O:LEV=1
134Ø A$=INKEY$:IF A$="Q" THEN CLS:GOTO 136Ø ELSE IF A$=" " THEN GOTO 137Ø
135Ø LINE(19Ø,8)-(21Ø,2Ø),1,BF:NEXT
136Ø DEF SEG=&H4Ø:POKE &H1ØA4,Ø:POKE &H1ØA4+1,&HFE:END                    ";:GOTO 14ØØ
137Ø COLOR 1,1:LOCATE 25,2:PRINT"
138Ø FOR D=X1 TO X2 STEP 2:FOR C=Y1 TO Y2 STEP 2:PSET(D,C),2
139Ø NEXT C:NEXT D:RETURN
14ØØ LINE(9Ø,4Ø)-(47Ø,145),Ø,BF
141Ø REM Before game , initialisation
142Ø SC=Ø:TIME=13:ENERGY=13:LINE(515,16Ø)-(61Ø,182),Ø,BF
143Ø SYMBOL(525,165),"ØØØØØ",2,2,7
144Ø REM Before wave , initialisation
145Ø FOR D=23 TO 24-TIME STEP -1:COLOR 6,1:LOCATE D,4
146Ø PRINT CHR$(219);:NEXT
147Ø FOR D=23 TO 24-ENERGY STEP -1:LOCATE D,8:PRINT CHR$(219);:NEXT
148Ø LOCATE 9,2:COLOR 2,1:PRINT"Level";:COLOR 6,1:PRINT LEV;:PUT(8Ø,15Ø),C
149Ø SEC=Ø:SHX=32:SHY=18
15ØØ FOR C=1 TO Z
151Ø BA(C)=1:BB(C)=-1
152Ø BX(C)=INT(RND*5Ø+1)+1Ø:BY(C)=INT(RND*12+1)+5
153Ø BY(C)=INT(RND*12+1)+5:HG=BX(C):HF=BY(C):FOR J=1 TO Z
154Ø IF BY(J)<HF+1 AND BY(J)>HF-1 AND BX(J)<>HG THEN GOTO 153Ø:ELSE NEXT J
155Ø NEXT C
156Ø REM Game Start
157Ø LOCATE SHY,SHX:COLOR 6,Ø:PRINT NN$;
158Ø FOR J=1 TO 5
159Ø A$=INKEY$:IF A$=" " THEN GOSUB 172Ø
16ØØ IF A$=CHR$(28) THEN GOTO 164Ø
161Ø IF A$=CHR$(29) THEN GOTO 167Ø
162Ø NEXT J
163Ø GOTO 175Ø
164Ø IF SHX-2>1Ø THEN GOSUB 17ØØ:GOTO 165Ø: ELSE GOSUB 17ØØ:SHX=55:GOTO 157Ø
165Ø SHX=SHX-2:GOSUB 171Ø
166Ø GOTO 175Ø
167Ø IF SHX+6<61 THEN GOSUB 17ØØ:GOTO 168Ø: ELSE GOSUB 17ØØ:SHX=13:GOTO 157Ø
168Ø SHX=SHX+2:GOSUB 171Ø
169Ø GOTO 175Ø
17ØØ LOCATE SHY,SHX:COLOR Ø,Ø:PRINT NN$;:RETURN
171Ø LOCATE SHY,SHX:COLOR 6,Ø:PRINT NN$;:RETURN
172Ø LOCATE 23,17:COLOR 5,3:PRINT"Game paused , press any key to Resume";
173Ø S$=INKEY$:IF S$="" THEN 173Ø
174Ø PUT(8Ø,15Ø),C:RETURN
175Ø SEC=SEC+1:IF SEC=4Ø THEN GOSUB 194Ø
176Ø IF TIME=Ø THEN GOTO 196Ø
177Ø FOR C=1 TO Z:OLDX=BX(C):OLDY=BY(C)
178Ø BX(C)=BX(C)+BA(C)
179Ø IF BX(C)>6Ø OR BX(C)<11 THEN BA(C)=-BA(C):GOTO 178Ø
18ØØ BY(C)=BY(C)+BB(C)
181Ø IF BY(C)<5 THEN BB(C)=-BB(C):GOTO 191Ø
182Ø IF BY(C)>17 THEN GOTO 184Ø
183Ø GOTO 19ØØ
184Ø SC=SC+5Ø:IF BX(C)>SHX-1 AND BX(C)<SHX+5 THEN GOTO 185Ø ELSE GOTO 189Ø
185Ø P$=STR$(SC):PA=LEN(P$)-1:XZ=525+((5-PA)*15)+2:P$=RIGHT$(P$,PA)
186Ø PIT=1ØØ-(1Ø*C):DUR=1Ø:CALL &H1ØØ,PIT,DUR
187Ø LINE(XZ-1,165)-(XZ+(PA*15),18Ø),Ø,BF
188Ø SYMBOL(XZ,165),P$,2,2,7:BB(C)=-BB(C):GOTO 191Ø
189Ø ENERGY=ENERGY-1:GOTO 225Ø
19ØØ GOTO 192Ø
```

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- PLUS up to 4 double-density and quad-density drives
  - on double-density drives:
    - reads and writes all formats read by 1.25 and 2.11
    - reads, writes, and formats 200K SSDD diskettes
    - reads, writes and formats 400K DSDD diskettes
  - on quad-density drives:
    - reads, writes, and formats 730K and 800K on ordinary diskettes.

A-OK DOS-3/1.25 or **A-OK DOS-3**/2.11 and Video Board **$55**

A-OK DOS-4™

"The *Standard* Quad-Density DOS"

- All the features of **A-OK DOS-2**
- PLUS up to 4 quad drives—3.2 Megabytes of *removable* medium!
  - quad drives read all diskettes written by MS-DOS 1.25 and 2.11
  - quad drives read, write and format 160K, 180K, 200K, 320K, 360K, 400K, 730K, 800K formats on ordinary diskettes.
  - will not run Prolok™ disks.

We at A-OK Computers thank you for making **A-OK DOS-4**™ *the* standard DOS for quad-density drives on the Sanyo. Thousands of copies of **DOS-4**™ are now in use in the most demanding applications—yours. Potential bugs have been identified and corrected, making **DOS-4** a mature, well seasoned tool. Your constant feedback has resulted in the successive refinement of our documentation. After thorough testing and comparison to would-be competitors, Scottsdale Systems, America's No. 1 seller of Sanyos, selected **DOS-4** as the standard DOS supplied with their Silver Fox™. (HAGEN-DOS™ is A-OK DOS-4). And of course, MidWest Micro Peripherals—one of America's largest sellers of computer equipment has selected **A-OK DOS-4** for their quad-based Sanyo. Because **DOS-4** is now the standard, our 720K and 800K formats are also regarded as the standard. Of the quad-density operating systems, only **A-OK DOS-4** supports the very popular **PrintScreen550.** *Soft Sector* sums it up well in their September 1984 review entitled "A-OK DOS and PrintScreen550—An Unbeatable Combination".

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- **PrintScreen550** now also supports the Video Graphics Board.
- **PrintScreen550** is designed for the everyday needs of most users.
- **PrintScreen550** capabilities
  - Prints a screenful of graphics to most popular printers.
    - This prints everything on the screen whether it's graphics or text.
    - User has the option to rotate the image on the paper. This permits Okidata 92s and other printers with less than 640 horizontal dot positions to print out the full screen.
    - Turns your Sanyo into a high-resolution graphics machine.
      - Multiscreen facility permits a printed image to be 640 dots by an almost unlimited number of dots in the perpendicular direction.
- **PrintScreen550** is flexible and easy to use.
  - Interactive mode
    - Works like the "Print Screen" button on the IBM-PC.
    - One keystroke does it all. No need to embed commands in BASIC. No extra programs to execute. Same single keystroke works in DOS, BASIC and all other software packages that run on the Sanyo.
  - Batch mode can be activated in BASIC by a one-line command.
- **PrintScreen550** is very fast and a lot of fun!

A-OK's PrintScreen550 software pulls the Print Screen button off the IBM-PC and puts it on your Sanyo MBC-550 Series computer.

PrintScreen550 is an option to any A-OK DOS for a meager **$24**

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```
191Ø JI=INT(RND*22+1):IF JI=15 THEN BA(C)=-BA(C):GOTO 18ØØ:ELSE GOTO 18ØØ
192Ø LOCATE OLDY,OLDX:COLOR Ø,Ø:PRINT " ";
193Ø LOCATE BY(C),BX(C):COLOR 5,Ø:PRINT CHR$(21);:NEXT C:GOTO 157Ø
194Ø SEC=Ø:LOCATE 24-TIME,4:COLOR Ø,Ø:PRINT CHR$(219);:TIME=TIME-1
195Ø RETURN
196Ø FOR A=1 TO 2Ø:COL=INT(RND*7+1):LOCATE 1Ø,22:COLOR COL,Ø
197Ø PRINT"Prepare to Warp into Wave";LEV+1;:NEXT A:WINDOW(79,29)-(48Ø,185)
198Ø FOR P=9 TO 1 STEP -1:DUR=7:PIT=P*2Ø:CALL &H1ØØ,PIT,DUR:NEXT P
199Ø FOR P=1 TO 9 STEP 1:PIT=P*2Ø:CALL &H1ØØ,PIT,DUR:NEXT P
2ØØØ VIEW(79,29)-(48Ø,185),Ø,2
2Ø1Ø LOCATE 1Ø,22:COLOR Ø,Ø:PRINT"                                        ";
2Ø2Ø LOCATE 25,19:COLOR 7,1:PRINT" You are now warping into Wave";LEV+1;
2Ø3Ø LEV=LEV+1:RESTORE 2Ø5Ø
2Ø4Ø FOR A=1 TO 5:READ J(A):NEXT:ST=J(INT(RND*5+1))
2Ø5Ø DATA 12,15,18,11,1Ø
2Ø6Ø FOR B=1 TO 25:FOR C=1 TO ST:CXV=INT(RND*639+1):CYV=INT(RND*199+1)
2Ø7Ø COL=INT(RND*7+1):PSET(CXV,CYV),COL:NEXT C:ST=J(INT(RND*5+1))
2Ø8Ø NEXT B:GET(26Ø,8Ø)-(3ØØ,12Ø),X
2Ø9Ø PUT(26Ø,8Ø),M,OR:PUT(26Ø,8Ø),X:B=1ØØ
21ØØ FOR A=26Ø TO 8Ø STEP -2Ø:B=B-1Ø:GET(A,B)-(A+4Ø,B+4Ø),X
211Ø DUR=4:PIT=A/2:CALL &H1ØØ,PIT,DUR:PIT=PIT+2:CALL &H1ØØ,PIT,DUR
212Ø PUT(A,B),M,OR:PUT(A,B),X:NEXT A
213Ø LOCATE 25,2Ø:COLOR 4,1:PRINT" Press any key to start Wave ";LEV;
214Ø A$=INKEY$:IF A$="" THEN GOTO 214Ø
215Ø COLOR 1,1:LOCATE 25,2Ø:PRINT"                                        ";
216Ø VIEW(8Ø,3Ø)-(479,184),Ø,2:VIEW(1,1)-(639,199):Z=Z+1:SC=SC+25Ø
217Ø P$=STR$(SC):PA=LEN(P$)-1:XZ=525+((5-PA)*15)+2:P$=RIGHT$(P$,PA)
218Ø LINE(XZ-1,165)-(XZ+(PA*15),18Ø),Ø,BF
219Ø SYMBOL(XZ,165),P$,2,2,7
22ØØ IF LEV=4 OR LEV=7 OR LEV=1Ø OR LEV=13 OR LEV=16 THEN ENERGY=ENERGY+3
221Ø ENERGY=ENERGY+1
222Ø IF ENERGY>13 THEN ENERGY=13
223Ø TIME=13:PUT(8Ø,15Ø),CB:GET(8Ø,15Ø)-(475,185),C:GOTO 145Ø
224Ø GOTO 19ØØ
225Ø COLOR 3,1
226Ø FOR P=2ØØ TO 1ØØ STEP -5:DUR=2:CALL &H1ØØ,P,DUR:NEXT P
227Ø LOCATE 24-ENERGY-1,8:COLOR Ø,Ø:PRINT CHR$(219);:SC=SC-5Ø
228Ø IF OLDX<BX(C) THEN LOU=-1:ELSE LOU=1
229Ø IF BX(C)=11 THEN LOT=1:GOTO 231Ø
23ØØ IF BX(C)=6Ø THEN LOT=-2:GOTO 231Ø:ELSE LOT=Ø:GOTO 231Ø
231Ø LOCATE BY(C)-1,BX(C)+LOU:PRINT " ";:FOR X=1 TO 3:COLOR INT(RND*7+1),Ø
232Ø LOCATE BY(C),BX(C):PRINT CHR$(21):BY(C)=BY(C)+1:LOCATE BY(C)-1,BX(C)
233Ø FOR Y=1 TO 2ØØ:NEXT Y:PRINT " ":NEXT X:PUT(BX(C)*7.7,BY(C)*7.5),BO,OR
234Ø GET(8Ø,15Ø)-(475,185),C:LOCATE 17,61:COLOR 3,Ø:PRINT CHR$(186);
235Ø FOR X=1 TO 1Ø:LOCATE BY(C),BX(C)+LOT
236Ø COLOR 6,Ø:PRINT CHR$(3Ø);CHR$(31);:FOR Y=1 TO 1ØØ:NEXT Y
237Ø FOR P=2ØØ TO 1ØØ STEP -5:DUR=2:CALL &H1ØØ,P,DUR:NEXT P
238Ø COLOR 4,Ø:LOCATE BY(C),BX(C)+LOT:PRINT CHR$(3Ø);CHR$(31);:NEXT X
239Ø IF ENERGY=Ø THEN GOTO 254Ø
24ØØ RESTORE 244Ø:FOR G=1 TO 7:READ L:LM(G)=L:NEXT G:RESTORE 243Ø
241Ø FOR G=1 TO 7:FOR Y=1 TO 75:NEXT Y
242Ø FOR X=1 TO 5:READ JK:LOCATE 2Ø,JK:COLOR LM(G),Ø:PRINT CHR$(29);:NEXT X
243Ø DATA 21,23,35,41,48
244Ø DATA 7,Ø,4,6,Ø,4,Ø
245Ø RESTORE 243Ø
246Ø NEXT G
247Ø WINDOW(79,3Ø)-(48Ø,184):VIEW(79,3Ø)-(48Ø,184),Ø,2
248Ø WINDOW(1,1)-(639,199):VIEW(1,1)-(639,199)
249Ø IF ENERGY>3 THEN GOTO 252Ø
```

```
25ØØ PUT(8Ø,15Ø),C:FOR Y=1 TO 5Ø:NEXT Y:PUT(8Ø,151),C,PRESET
251Ø FOR Y=1 TO 5Ø:NEXT Y:PUT(8Ø,15Ø),C
252Ø FOR Y=1 TO 5ØØ:NEXT Y:IF TIME<13 THEN:TIME=TIME+1:GOTO 145Ø
253Ø GOTO 145Ø
254Ø VIEW(8Ø,3Ø)-(479,184),Ø,2:VIEW(1,1)-(639,199)
255Ø LOCATE 1Ø,31:COLOR 6,Ø:PRINT"Game Over":FOR J=1 TO 1ØØØ:NEXT J:LL=Ø
256Ø IF SC<THI THEN GOTO 261Ø ELSE:P$=STR$(SC):PA=LEN(P$)-1:IF PA=1 THEN LL=2
257Ø IF PA=2 THEN LL=1
258Ø IF PA=5 THEN LL=-3
259Ø XZ=525+((5-PA)*15)+1+LL:P$=RIGHT$(P$,PA):SYMBOL(525,132),"ØØØØØ",2,1,7
26ØØ LINE(XZ,132)-(XZ+(14*(PA+1)),139),Ø,BF:SYMBOL(XZ,132),P$,2,1,7
261Ø IF SC>S(1Ø) THEN LOCATE 13,21:COLOR 3,Ø:NA$(1Ø)="":GOTO 262Ø:ELSE 275Ø
262Ø PRINT"You're on the High Score Table":S(1Ø)=Ø:GOTO 263Ø
263Ø COLOR 2,Ø
264Ø LOCATE 15,21:PRINT"Enter your name here ";:COLOR 6,Ø:INPUT NP$
265Ø IF NP$="" THEN NP$="    " GOTO 267Ø ELSE GOTO 266Ø
266Ø NP$=LEFT$(NP$,4):MP=4-LEN(NP$):NP$=NP$+STRING$(MP," "):NP$=LEFT$(NP$,4)
267Ø OPEN "R",#1,"BATHI'S.FIL",5Ø:FIELD #1,2 AS J$,4 AS H$,8 AS I$
268Ø FOR A=1 TO 1Ø:IF S(A)<SC THEN GOTO 273Ø:ELSE NEXT
269Ø FOR A=1 TO 1Ø:RSET J$=MKI$(A):LSET H$=N$(A):RSET I$=MKD$(S(A)):PUT #1,A
27ØØ NEXT:CLOSE:COLOR 4,1
271Ø FOR L=1 TO 1Ø:LOCATE 5+L,64:PRINT"    ":LOCATE 5+L,74:PRINT"      "
272Ø LOCATE 5+L,64:PRINT N$(L):LOCATE 5+L,74:PRINT S(L):NEXT L:GOTO 275Ø
273Ø FOR B=9 TO A STEP -1:S(B+1)=S(B):N$(B+1)=N$(B):NEXT B:S(A)=SC:N$(A)=NP$
274Ø GOTO 269Ø
275Ø COLOR 2,Ø:LOCATE 1Ø,31:PRINT STRING$(9," "):LOCATE 13,21
276Ø PRINT STRING$(35," "):LOCATE 15,21:PRINT STRING$(35," ")
277Ø PUT(8Ø,15Ø),CB:GET(8Ø,15Ø)-(475,185),C:GOTO 126Ø
```


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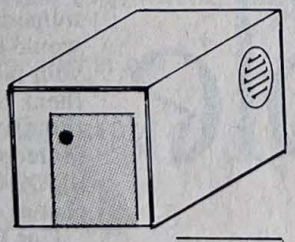

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A digital diversion for the nervous novice and harried hacker, alike

The Permutable Puzzler

By Gary Willert

Puzzles, like games, are an excellent way to introduce people to the world of computing. They represent a bit of the "outside world" that can form a bridge to get the nervous novice over his fear of "that monster," or they can form an interesting diversion for more expert users who may be suffering from data overload.

This simple example is a replica of a ninety-nine cent entry that has already provided thousands of hours of pleasant bafflement in train stations, hotel rooms and hospital beds. It is also an example of a short program that gets the job done: If the remarks were removed, there would be only 34 lines in this program (including DATA).

Note the use of GET and PUT to place the markers on the screen. In spite of the warning in the *Sanyo BASIC Reference Manual* that "256K of memory is required for the PUT command," these commands can be used with systems with less memory. You will not, however, be able to GET or PUT the entire screen with less than 256K. These commands, used together, provide a fast way of placing graphics on the screen and, to some degree, can make up for the lack of the DRAW command in Sanyo BASIC. In order to use these commands you must DIMension array(s) of sufficient size to hold the required data. I suggest that you start out with high numbers in your array statements, reduce them until you produce an error message and then increase by one. Use real number arrays.

In order to GET graphics data into an array, you must first create it on the screen. If you use a title display you can draw the graphics characters on the screen as part of your opening sequence. After GETting the pictures into the appropriate arrays, you can reproduce them quickly (and with a number of variations) anyplace on the screen. An alternative would be to create the graphics data outside the program and feed it into the arrays as numeric data. The simplest way to do this would be to write a program that displays your pictures on the screen and then saves them into disk files. This method, although more cumbersome, is preferable for large or complex pictures. By using the WINDOW and VIEW commands, you can change the size of the displayed pictures.

One last note about GET and PUT. These commands are not limited to graphics data use. With a bit of practice you should be able to use them to create pull-down or pull-up menus.

(Gary Willert is a former engineer who now, along with his wife Penny, operates "Willowtree," writing custom software for education and small business. He also conducts computer-familiarization classes for children. He may be contacted at 3 New Port Way, Thornhill, Ontario, Canada L3T 5G3; 416-731-9676.)

The listing: PUZZLER.BAS

```
10 ' ************************************
11 ' *          P U Z Z L E R           *
12 ' *  -------------------------------  *
13 ' *  by:      Gary Willert            *
14 ' *               of                 *
15 ' *            WILLOWTREE            *
16 ' *          3 New Port Way          *
17 ' *          Thornhill, Ont          *
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20 ' *  -------------------------------  *
21 ' *  SANYO BASIC for MBC-550 series   *
22 ' *  September, 1985                 *
23 ' ************************************
100 '
110 ' ---> Set starting conditions
120 '
130 C0=4:C1=2:C2=6:CT=3:OK$=CHR$(3)+CHR$(27)+CHR$(13)+CHR$(28)+CHR$(29)+CHR$(32)
140 DIM M(11),L(95),R(95),Z(95)
150 CONT N
160 '
170 ' ---> Draw title & sample markers
180 '
190 COLOR CT,0:CLS:LOCATE 23,1,0:LINE(77,0)-(523,17),CT,BF:SYMBOL(93,2),"P U Z Z
 L E R",4,2,0
200 FOR A=240 TO 360 STEP 60:CIRCLE(A,55),18,,,,C0:NEXT
210 PAINT(240,55),C1,C0:PAINT(360,55),C2,C0:SYMBOL(263,52),CHR$(26),2,1,C1:SYMBO
L(324,52),CHR$(27),2,1,C2
220 '
230 ' ---> Feed graphics data to arrays
240 '
250 GET(220,45)-(260,65),L:GET(280,45)-(320,65),Z:GET(340,45)-(380,65),R
260 '
270 ' ---> Display playing board & notes
280 '
290 RESTORE:FOR P=1 TO 11:READ M(P):GOSUB 420:NEXT
300 SYMBOL(0,128),"Press ARROW to move marker.",2,1
310 SYMBOL(96,144),"RETURN for new game.",2,1
320 SYMBOL(96,160),"ESC or BREAK to end game.",2,1
330 SYMBOL(96,176),"SPACE BAR for rules.",2,1
340 '
350 ' ---> Accept player input
360 '
370 K$=INPUT$(1):ON INSTR(OK$,K$)+1 GOTO 370,380,380,290,490,580,650
380 COLOR 2,0:END
390 '
400 ' ---> Draw playing marker
410 '
420 ON M(P)+1 GOTO 430,440,450
430 PUT((P-1)*40+82,80),Z:RETURN
440 PUT((P-1)*40+82,80),L:RETURN
450 PUT((P-1)*40+82,80),R:RETURN
460 '
470 ' ---> Move marker left
480 '
490 A=0:FOR P=11 TO 2 STEP -1:IF M(P)=2 AND M(P-1)=0 THEN SWAP M(P),M(P-1):GOSUB
 420:P=P-1:GOSUB 420:A=1:GOTO 530
500 NEXT
```

```
51Ø FOR P=11 TO 3 STEP -1:IF M(P)=2 AND M(P-2)=Ø THEN SWAP M(P),M(P-2):GOSUB 42Ø
:P=P-2:GOSUB 42Ø:A=1:GOTO 53Ø
52Ø NEXT
53Ø IF A=Ø THEN BEEP
54Ø GOTO 37Ø
55Ø '
56Ø ' ---> Move marker right
57Ø '
58Ø A=Ø:FOR P=1 TO 1Ø:IF M(P)=1 AND M(P+1)=Ø THEN SWAP M(P),M(P+1):GOSUB 42Ø:P=P
+1:GOSUB 42Ø:A=1:GOTO 53Ø
59Ø NEXT
6ØØ FOR P=1 TO 9:IF M(P)=1 AND M(P+2)=Ø THEN SWAP M(P),M(P+2):GOSUB 42Ø:P=P+2:GO
SUB 42Ø:A=1:GOTO 53Ø
61Ø NEXT:GOTO 53Ø
62Ø '
63Ø ' ---> Clear notes & print rules
64Ø '
65Ø LINE(Ø,128)-(639,199),Ø,BF:SYMBOL(Ø,128),"OBJECT",2,1:LOCATE 17,14
66Ø RESTORE 72Ø:FOR A=1 TO 7:READ K$:PRINT K$:NEXT
67Ø SYMBOL(Ø,192),"Press any key to continue.",2,1,6:LOCATE 24,1:K$=INPUT$(1):LI
NE(Ø,128)-(639,199),Ø,BF:GOTO 3ØØ
68Ø '
69Ø ' ---> DATA statements
7ØØ '
71Ø DATA 1,1,1,1,1,Ø,2,2,2,2,2
72Ø DATA of the game is to transfer each set of markers to the opposite end,of t
he row.  A marker may either move forward to the empty hole or jump over a,marke
r of the opposite colour.,
73Ø DATA "Since there is only one legal move in each direction at any given time
, all you",need to do is press the right or left cursor key and the computer wil
l do the,rest.  The game is over when there are no legal moves in either directi
on.
74Ø ' VARIABLES
75Ø ' ---------
76Ø ' CØ,C1,C2,CT  Colour codes
77Ø ' L(),R(),Z()  Graphics arrays
78Ø ' M()          Contents of playing positions
79Ø ' OK$          Identifier of valid input
8ØØ ' A,P,K$       Utility
```


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REVIEWS

Software review

Atlas — Around The World In A Day

Atlas, by Software Concepts, Inc., is a truly interesting product. I spent hours playing with it and learning from it. What it does, in effect, is put a globe of the world on the screen of your Sanyo 555 with a Video RAM Board or your 775. It also runs on the IBM and other Sanyo compatibles.

Actually, this program does more than just put a globe on your screen. Suppose you want to find Hamburg, Germany on a globe. First you find Europe, then Germany and then, if your eyes are very good, Hamburg. Using *Atlas*, you just type in Hamburg, press the "home" key and there you are! A map of Europe is there, with Hamburg in the center of the screen.

That's not all, folks. In fact, that's just a start. You can also find the distance from any city with a population over 100,000 to any other city over 100,000. There are also a number of small cities included. And all capitals are there. For each city you choose, *Atlas* gives you information on the population, the state or province of the city, its country, the area of the country, the monetary unit and the language of the country.

There's the fun part to consider, too. Find your city, then move the cursor in any direction you like. *Atlas* will tell you how far you are from London, Casablanca, the North Pole, or whatever you choose.

Let's not forget the educational aspects. My 12-year-old son thought it was amazing that if you move the *Atlas* cursor due east of here, you find yourself in southern Italy and Greece. Keep going and there is Japan. It just doesn't look that way on a map. He has a much better understanding of why planes fly so far north to get to London than he had before he used *Atlas*.

Not only is *Atlas* an interesting program, Software Concepts is using a very interesting marketing approach. If you want to try the software, just send five dollars. For your five dollars you will get the disk and the operating manual. You will be able to run *Atlas* three times. If you decide you like it, call their 800 number and give them your Visa, Mastercard or American Express card number. They will give you the code to unlock your disk for permanent use.

The only thing I didn't care for was its copy protection. I hate buying software I can't back up. I usually don't, but I would make an exception in the case of *Atlas*.

Atlas is an excellent program. The manual is clear and concise. I can't even begin to describe everything *Atlas* will do. I am amazed that so much information and so much excellent graphics can be put on one floppy. I recommend this program strongly.

(Software Concepts, Inc., 1116 Summer Street, Stamford, CT 06905, 203-357-0522, $5 for disk and manual, $69.95 for unlocking)

— Jim Pile

Software review

Turbo Drive 550 — More 'Drive' For Your Disk

Turbo Drive 550, marketed by A-OK Computers, allows the user to create a phantom drive by using a portion of Random Access Memory (RAM). The package, which sells for $33, emulates a mechanical disk and is several times faster. Two advantages for using *Turbo Drive 550* are its speed and its ability to bypass your mechanical drives. Two disadvantages: It reduces memory availability for other tasks and your work files must be saved to a floppy prior to turning off your Sanyo. Remember, *Turbo Drive 550* uses RAM, and RAM is operable only when your Sanyo is working; when you turn your system off the information in RAM is lost.

The program comes with a single-sided floppy disk and a user manual. The floppy consists of five versions of *Turbo Drive 550* — one for each type of operating system, as follows: one for MS-DOS 1.25 to support single-sided, double density drives, one for MS-DOS 2.11 to support double-sided, double density drives, and three for MS-DOS 2.11 V.B. to support the video board. The 2.11 V.B. versions required are based on the copyright date that appears on the screen when your system is loaded.

The user manual contains all the information required to install the program and the instructions for using it. It also

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*TRACK© and GL require the InfoStar package. Stock Portfolio One, ACCESS FIVE©, and GGU V.2 run on the Sanyo, IBM-PC and compatibles. GGU V.1 runs on the Sanyo only.

BGW SYSTEMS, INC. $49.95 16714 S. Meridian, Suite 200 Puyallup, WA 98373 (206) 845-7845

contains the license agreement and an example for using *Turbo Drive 550* with *WordStar*. The manual is 13 pages long and very easy to read.

The installation instructions for *Turbo Drive 550* are quite simple. The procedure is as follows: 1) Boot the system with your operating disk; 2) During the system sign-on, but prior to entering the date and time, write down the system version you are running; 3) Key the date and time into the system to complete the booting; 4) Insert the *Turbo Drive 550* disk into Drive B and copy the *Turbo* file for the version of the operating system you are running. If your system only has one drive, copy the *Turbo* file using SCOPY. A *Turbo* file is required on all disks you plan to use the *Turbo Drive* program with.

There are two easy methods of operation for *Turbo Drive 550*. First is the menu method, which is the easiest way to activate the program. To use the menu method, key in TURBODRV. The program will request a drive designator; you then enter B for a single-drive machine or C for a double-drive machine. Once the drive letter is entered, the program will request the storage capacity required in Kbytes. A Kbyte is 1024 bytes. The drive is ready for use after storage capacity has been assigned.

The second method of program operation is the parameter method. This method requires you to enter the information on the command line in the following format:

```
TURBODRV\C\135
```

TURBODRV is the *Turbo Drive 550* program, C represents the drive designation and the 135 represents the storage capacity, or 135K. The advantage of using the parameter method is that it allows you to install *Turbo Drive 550* automatically from a batch file.

The user manual also contains a table showing the maximum amount of Kbytes that can be assigned to *Turbo Drive 550* with the version of MS-DOS and amount of memory installed.

The example in the user manual using *WordStar* with *Turbo Drive 550* is complete and easy to follow. It assumes the users system has one disk drive, and describes efficient ways to use *WordStar* with this package. The example begins with formatting a blank disk, then it tells you what files are required to be copied and how to execute *Turbo Drive 550* using the parameter method.

To run *Turbo Drive 550*:

1) Execute *Turbo Drive 550* using either the menu or the parameter method. For example:

   ```
   TURBODRV\C\135
   ```

2) Copy COMMAND.COM to the *Turbo Drive*. This is required because many programs, like *WordStar, Easy Writer* and *CalcStar* will not exit to the operating system unless the COMMAND.COM file is on the logged drive. Note: An important difference between using the RAM "disk" and a mechanical disk is that you cannot insert a floppy with the command file into RAM. Instead, you must reboot the system. Once the system is rebooted the files are lost and so is your effort.
3) Copy the required files from the mechanical disk to *Turbo Drive*. This includes program files and data files. For *WordStar* copy WS*.OVR and the data file you want to work with. You are now ready to use *WordStar* with your new RAM "disk."
4) When you have completed your document on *WordStar*, copy your files back to your floppy disk, or your effort will be wasted.

I followed the same procedure for *WordStar, Easy Writer* and *CalcStar*. I had no problems working with any of the packages on RAM disk. When working with *Easy Writer* I had to change the default drive to C, but that was it.

I found the response time on all three packages to be incredibly fast, and it was also strange not to hear the disk drive working every time. I changed commands. There is a definite time savings using *Turbo Drive 550* when using it with the three packages previously mentioned. The most difficult task I had was determining what files were required for *Easy Writer* and *CalcStar* in order to calculate my disk capacity. However, once I determined what they were, it was a simple matter of loading the files and executing the package.

In summary: *Turbo Drive 550* lives up to its expectations. It does a remarkable job of speeding up the processing, it saves wear and tear on your mechanical disk drives, it is easy to use and only costs $33. However, when using it remember you are limiting memory availability for other tasks, and, if you do not copy COMMAND.COM to your RAM disk and copy your work files back to your mechanical disk upon completion, you will probably lose your work. *Turbo Drive 550* works fine. Just follow the procedure to make it successful.

(A-OK Computers, 816 Easley St., Suite 615, Silver Spring, MD 20910, 301-585-5105, $33)

— John E. Schlosser

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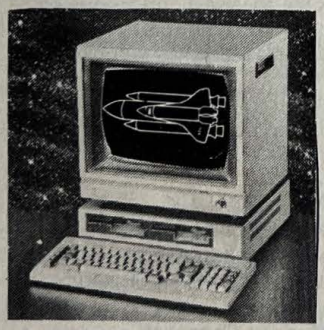

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MyChess — Good Graphics And Tough Chess!

The basic mode of *MyChess* is man against computer in a standard game of chess, but there are several options. One can set up a special position (such as a handicap or a chess problem), have the computer play both sides, move twice for each move the computer makes, and switch sides in the middle of a game. It is also possible to have the computer suggest moves for the player. A listing of the game can be printed out or saved to disk, and a game in progress can be saved for future continuation.

The documentation is quite good. It explains how to configure the program, execute the various options, start a game and enter moves. There is also an interesting section on the development of this program and the history of microcomputer chess in general. The discussion of strategy provides nice insights into computer technique and, perhaps, into methods to attack the computer's strategy.

Of course, the litmus test of a program like this is the quality of its play. The player can designate how far ahead the computer will look before moving (which can be changed during a game). At the first level the computer looks ahead half a move, at the second a full move, and so on until level nine where it looks ahead four-and-a-half moves. Of course, the trade-off is speed against quality. Level one requires only a few seconds, level three just over a minute, and level nine several days (in theory) for each move.

It is not that the program is inefficient. It was written in assembly language and, for what it does, is pretty fast. The "problem" is that even with pruning techniques, there is an enormous number of possibilities to consider at higher levels. Even at the lower levels, however, it plays a good game. Several years ago, I was a fair player (fourth board on my high school team) and it gave me a good challenge. At levels one and two, I lost just under half the games, and at levels three and four I didn't stand a chance. This indicates that it is quite good at evaluating positions, and, of course, it doesn't make any obvious blunders.

The only playing suggestion I can make is to plan gambits that don't pay off until after the computer's look-ahead. Also, it seems to favor material over position, which a good player can sometimes exploit. In most of the games I won, I managed to stay even until the end game where my experience allowed me to establish positions that I knew would win eventually.

There are several configurations possible, depending on the hardware *MyChess* is to be run on. The graphics on the IBM versions are pretty good, but the Sanyo version is better. There is a lot of pleasing detail on the "pieces" — the knights have manes, and the rooks have bricks — and a utility to change the colors is provided. There are also two versions that don't use graphics (for other machines). One attempts to "construct" pieces from standard ASCII characters, but I think this is hopeless. The other uses text to describe the board (and scrolls after each move).

There are only a few drawbacks and they are all minor. The first is that it beats me all the time. More seriously, *MyChess* will not allow a player to have more than one queen. If a pawn is promoted when the queen is still on the board, the player must choose something else. Also, it doesn't seem to recognize draws other than stalemate. For example, it will not stop a game when the same position occurs three times, nor will it avoid such a position if it is ahead.

I recommend that future versions contain an option to take a move back (or to back up through a game). I realize that the custom in chess is that moves cannot be recalled, but the program allows "cheating" in other ways. Currently, the only way to experiment with a certain move is to save the game to disk. As it stands, *MyChess* can serve as an excellent tutor for novice and intermediate player alike, and this change would enhance its educational value.

(The Software Toolworks, 15233 Ventura Boulevard, Suite 1118, Sherman Oaks, CA 91403, 818-986-4885, $34.95)

— Stewart Shapiro

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Sanyo Graphic Screen Dump — A Multi-Function Utility

Sanyo Graphic Screen Dump from Level IV Products is not just another screen dump routine for the Sanyo 550/555. What separates this program from the crowd is its ability to present different shading densities for each of the eight possible colors. If you have a color printer, the printouts will be in full-color.

At this time, versions are available for Epson, BMC, Star Gemini and the Tandy Color Ink Jet printers. In order to use the program, just key in SDEPSON (for this version) at the DOS prompt and hit RETURN. This will load the utility into lower memory where it will protect itself. Once completed, a confirming message will appear on the screen and you are ready to continue on with business as usual. Or, to simplify things, add this command to your AUTOEXEC.BAT file.

There are three interrupt-driven modes available which are called by the following key sequences:

Exact Image, CONTROL-8 — full graphics dump with black and white printed accordingly and the colors as various shades of grey.

Reverse Image, CONTROL-9 — same as above, only black is printed as white and white as black. The purpose of this option is to conserve ink when a "dark" screen is to be printed.

Text Only, CONTROL-0 — only the text appearing on the screen is sent to the printer. Being a straight ASCII dump, this option should run on any printer.

When any of the graphic's routines are called, you are prompted to "Enter number of passes one through nine." Enter the appropriate number and the printer is called into action. Your screen will now be reproduced in its entirety, turned 90 degrees and approximately centered on the paper.

This program has some good features and minor drawbacks, relative to other screen dump programs I've used. I found the two-key sequence both easier to remember and invoke than the three keys required of other dump utilities. The six intermediate shades of grey representing colors between black and white ensure that the entire screen will be reproduced. In order to evaluate the differences between these shading densities, I dumped the eight color bars from the MDEMO2.BAS program on the Sanyo DOS 2.11 System disk. Sure enough, they are all there. However, yellow, purple and light blue are difficult to distinguish as are blue, green and red. A feature I would have liked to have found, and didn't, is a means of aborting a dump in progress.

Unfortunately, I do not own or have access to a printer capable of producing color and, therefore, cannot comment on this aspect of the program.

In summary, *Sanyo Graphic Screen Dump*, written by Timothy Purves, is a unique multi-function utility which performs well and is reasonably priced. Those of you with the ability to print in color will definitely want to consider this program.

(Level IV Products, 28104 Schoolcraft Rd., Livonia, MI 48150, 313-525-6200, $39.95)

— Bob MacDonald

Loan-Master — Value As A Function Of Use

Loan-Master, a loan amortization package, is a fairly complete loan analysis program. It requires input of three of four basic items: principal, annual interest rate, number of payments and payment amount; and it calculates the remaining item, provides a payment table, equity, balance, interest, etc. It can provide the results in a periodic table (the period being the payment period) or in an annual summary with the pertinent tax data. A total loan summary is also provided, with the total loan cost and the calculated parameter highlighted.

When *Loan-Master* is invoked from DOS, the first serious business is the options parameters menu. Here one can change the number of monthly payments printed on a sheet of paper, change the number of days in a year for determining daily interest, and choose the default drive and some printer and computer-specific parameters. Changes are saved for future use as the file AMORT.PAR, or may be used and not saved, leaving the parameters in their original form for next use. Proceeding at the main work sheet, numbers are entered for a calculation.

Loan-Master needs three of the four basic parameters to make a calculation; if less is given an error message prompts you. Also needed are the time units (days, months or years; months is default), number of time units per payment (default is one) and the first payment date (01-Jan-00 is default). The interest rate needed is the *annual* interest rate. Thus 1.5 percent monthly interest on your credit card is not a correct entry; the calculation of monthly interest with yearly payments results in the same calculation as the yearly interest with yearly payments.

Quarterly loans (common in business for inventory stocking) can be calculated with monthly time units; payment every three units and one unit. If the interest rate is the indeterminate parameter, you will be asked if you want a no-interest calculation (i.e., just dividing up the principal into equal parts with the exception of the last payment); otherwise the interest is calculated by a reiteration routine. Upon ending data entry you'll be asked if the output is to be periodic or yearly summaries. The periodic summaries give the monthly payments, equity, interest, etc. The yearly summaries give the interest for the year and to date; ditto for the equity. Unfortunately, the choice of periodic and yearly output is exclusive — to get both one has to run the analysis twice.

The program next asks for the choice of console (screen), disk or printer. You may abort the output after each screen

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display. The final output is the loan summary giving the cost of borrowing, term of loan, payment amount, etc. If you choose the printer, the number of schedule lines per page will be the amount chosen at the parameter menu at the beginning of the program; if you choose the disk, you"ll be prompted for a filename. The disk file is an image of the printed output and can be sent to the printer from DOS, or it can be edited in *WordStar*. Since the Sanyo 555 has no PRTSC key, you can't use the technique suggested to send output to both printer and screen. I was unable to use the Sanyo-supplied screen dump program to work with AMORT.

Before I begin the analysis of the program, I will digress to discuss the part of the package that configures the terminal. I don't recommend you use TCONFIG until you get used to AMORT, as AMORT runs without configuration and the instructions were so terse as to be confusing. TCONFIG allows you to make some keyboard parameter changes allowing key changes during data entry. Since I prefer to use the numeric keypad for data entry, I tried to change the keyboard for one-hand entry using the arithmetic keys (+, –, *, /, =) to move the cursor. I was able to change from end to ENTER for end of data entry, but the use of printable ASCII keys for cursor control did not work. This may be the result of a hardware difference between the Sanyo and the IBM. AMORT often uses a beep to signal a prompt; if you don't have a beep modifier you'll appreciate TCONFIG's ability to remove the bell. When running TCONFIG, first use the option for the IBM and then go to the modification.

AMORT is a compiled Turbo PASCAL program, compiled under the IBM version rather than the MS-DOS version. This may explain some minor problems. In a call to the distributor concerning these problems, recompiling with the MS-DOS version was mentioned, as well as the problem with TCONFIG. In the discussion, the company mentioned that video display problems with the MBC-555 had already caused changes in the version I am testing.

Loan-Master has many features that are very nice: the ability to make a disk file, the ability to calculate the missing parameter, a table of the tax and equity data by year and the loan summary. Since this is a loan *amortization* program, revolving credit analysis is difficult if not impossible. Loans figured on the basis of the interest due being added to the principal at interim (compound interest loans) have to be figured reiteratively.

A real-life example to illustrate: Businessman Jones needs a $10,000 loan for three months to stock his store. He calls the two banks he deals with: Bank A offers a 12.15 percent annual interest loan (monthly time units) payable in three months; Bank B offers a 1 percent monthly interest rate with the unpaid interest at the end of the interim months added to the loan payable in three months. Neither loan is discounted in advance. Before deciding which loan to take, he decides to use *Loan-Master* to compare. Loan A is easy, resulting in $303.75 interest. Loan B is hand calculated: $10,000 after one month, $10,201 after two and $10,302.01 at the end. It is less, but what is the rate?

The program won't allow a payment larger than the principal (I hesitate to call this a bug since it is part of the error trapping routine), so we have to plug numbers in with the payment indeterminate until payment $10,302.01; 12.08 percent in this case. The bank would provide him with this information, but by then he will have driven over and signed the papers. I have checked some of *Loan-Master*'s calculations against my bank's, and they agree. There was never more than one cent difference.

Now for the $64 (or in this case the $49.95) question: Is it worth it and should you rush out to buy *Loan-Master*? The answer to these questions is essentially one of opinion, so bear with me. The first problem with value is the price difference between the MS-DOS version and the CP/M-80 version ($29.95). It is not my position to tell others how to market their product, but I am put off by the difference between what seems to be very similar products. (I *do* understand the costs of product development, but doubt development costs are a factor here.)

Nonetheless, for certain people using this program in the course of daily business (car sales, real estate sales, etc.), there is no doubt it is worth $49.95 on a cost/benefit basis. A small-bank loan officer using a loan table will find this program invaluable (although one must have the computer first). For the occasional user, I have to say that the program is not so obviously worth the price.

All in all, I liked *Loan-Master*. If you have a real business use, by all means buy it. If you only have an occasional need to analyze a loan and get an amortization table, I can recommend the program as doing the job well, but leave the judgment as to value up to the buyer.

(Generic Computer Products Inc., P.O. Box 790, Marquette, MI 49855, 906-249-9801, $49.95)

— David N. Wexler

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FastStar

FastStar makes WordStar go fast on Sanyo MBC-55X computers.

Are you disappointed with how slow WordStar is on your Sanyo? FastStar triples the speed of WordStar's screen output on Sanyo MBC-550/555 computers (monochrome mode). FastStar now works in color too, and still speeds up WordStar's screen output by a factor of 2½. No kidding! FastStar should not be confused with patches that only speed up scrolling (such as WizStar), since FastStar speeds up all of WordStar's screen output. FastStar does this by substituting highly optimized screen output routines for the slow operating system routines that WordStar normally uses.

FastStar works with all DOS's and with WizStar. FastStar automatically recognizes if you are using the IBM compatible video board, and adjusts to speed up WordStar even more dramatically. FastStar is easy to install and use. FastStar also provides help to conveniently use a ramdisk to even further increase WordStar's performance. Ramdisk software for MS-DOS 2.11 is included, or you can use another ramdisk with either MS-DOS 1.25 or 2.11.

If you use WordStar on the Sanyo MBC-550/555, then FastStar can make a big difference for you.

FastStar costs only $20.00, including postage. To order send check or money order to:

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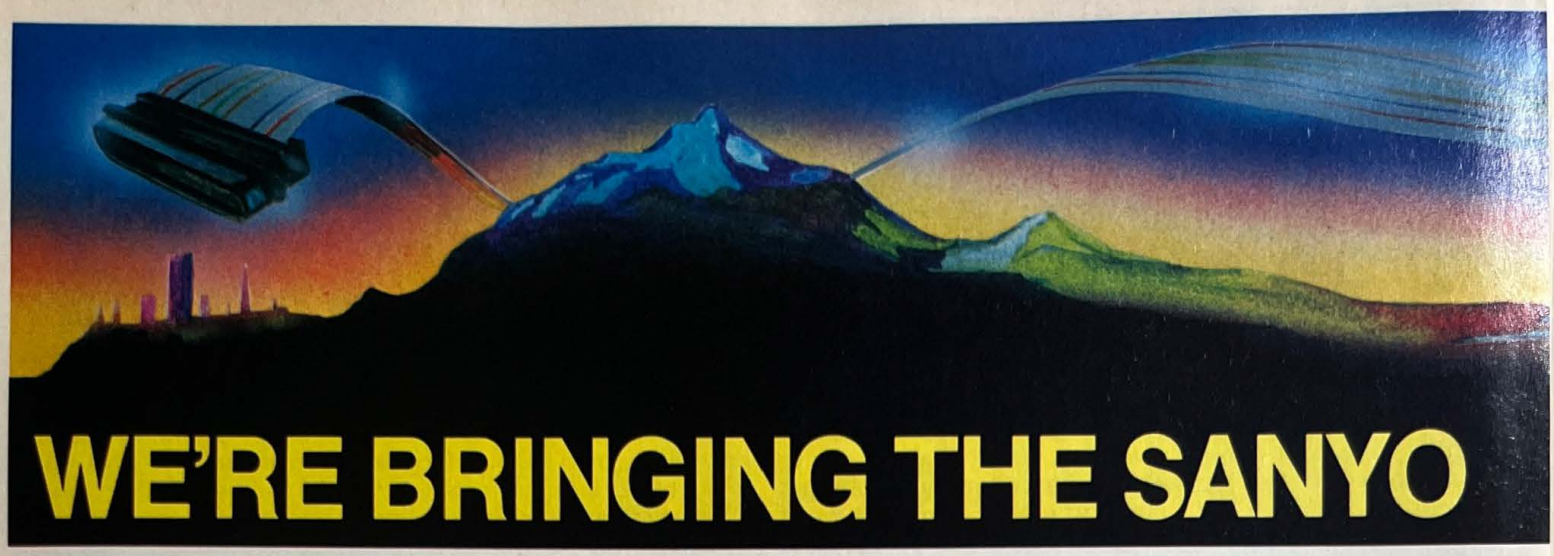


WE'RE BRINGING THE SANYO

SOFT SECTOR'S BROADENING ITS SPECTRUM

SOFT SECTOR and the Delphi Information Utility have joined together to allow Sanyo owners all over the world to connect with one another!

Delphi is a full-service information utility. It offers everything from up-to-the-minute news stories from The Associated Press to electronic mail services. But, *best of all*, it now has **a special forum for owners of MS-DOS computers, and it's operated by the people who bring you SOFT SECTOR each month.**

The MS-DOS Special Interest Group (SIG) features a variety of services, including an open forum where you can send and receive messages from Sanyo owners all over the world. It also has databases for exchanging programs, where you can upload your favorites and download programs written by other Sanyo enthusiasts.

THE WORLD OF MS-DOS

The MS-DOS SIG's conference feature allows you to meet electronically with other members of the Sanyo Community. You can join conferences with many notables in the world of MS-DOS on a regular basis. Conference schedules will appear in SOFT SECTOR each month. Be sure to check online announcements for changes and additions.

SOFT SECTOR ON LINE

On Delphi, you also are able to buy SOFT SECTOR ON DISK — order a whole set, or download an individual program immediately. You can also renew your SOFT SECTOR subscription, make a fast and easy order for software or hardware from a multitude of vendors, or inquire about products on the MS-DOS SIG.

We also have a number of **programs that you can download** and use, just for the cost of the time you spend transferring them. There'll also be **corrections for SOFT SECTOR articles**, helpful hints and many other useful features.

FREE LIFETIME MEMBERSHIP

SOFT SECTOR is offering subscribers a free lifetime subscription to Delphi — a $29.95 value — and a free hour of connect time — a $6 value at either 300 or 1200 Baud during evening, holiday and weekend hours — so you can sample Delphi and the brand new SOFT SECTOR MS-DOS SIG. **That's right. Your subscription to SOFT SECTOR entitles you to this $35.95 value as a *free bonus!***

If you're not a SOFT SECTOR subscriber, just enter your order when you sign on with Delphi and you'll get the same great deal! For our $28 subscription fee, you'll get the finest Sanyo computer magazine ever, a free lifetime subscription to Delphi and a free hour of connect time.

SAVE EVEN MORE

Want to save an extra $15? While you're online, you can order the *Delphi Handbook and Command Card* ($21.95) and three hours of connect time ($18) for only $24.95.

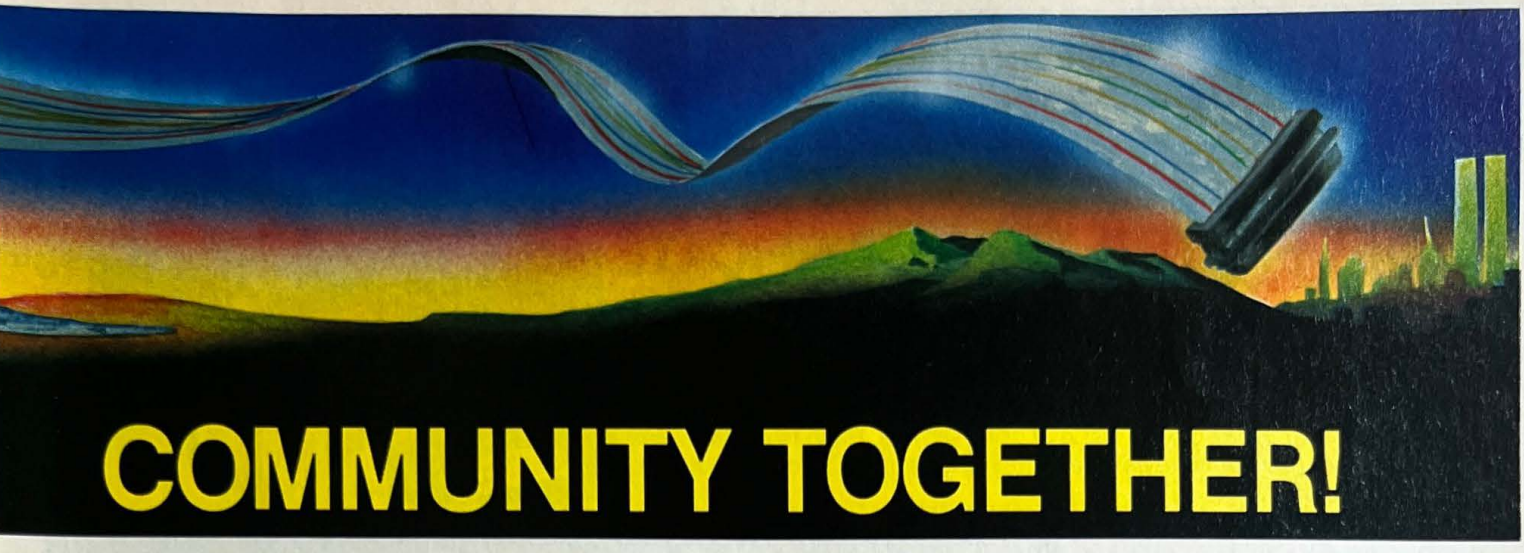
Delphi provides us all with **Immediate Sanyo Community**. Check it out today. After all, you can sample it for free!

When setting up your account with Delphi, if you do not have a credit card or prefer not to use it, Delphi requires that you send $20 to give your account a positive balance. This will be refunded after your first free hour if you choose to no longer use the system or it will be applied to future connect charges.

DELPHI

TYPE:

GROUP MSDOS



COMMUNITY TOGETHER!

How to reach the MS-DOS SIG on Delphi . . .

There are several ways to connect to Delphi and SOFT SECTOR's MS-DOS SIG. In most cities you will not even have to pay long distance charges; you can use special data communications networks, like Uninet, Tymnet and the Canadian Datapac network.

First, set your terminal program to operate at either 300 or 1200 Baud (depending on the modem you have), and also select either 7 bits with even parity or 8 bits with no parity, and one stop bit. (If one combination doesn't work, try another.)

Decide which network you should use (there is no charge for any of them, unless you have to make a long-distance call) and follow the instructions below:

On Uninet: Call (800) 821-5340 to get the Uninet number for your area. After you call the appropriate number for your own area and make connection, press ENTER, the period key (.) and ENTER again. At the "service:" prompt, type GVC (for General Videotex Corporation) and ENTER.

On Tymnet: Call (800) 336-0149 to get the Tymnet number for your area. After you dial your designated number and make connection, simply press 'A' no matter what appears on the screen. When "please log in:" appears, type DELPHI and press ENTER.

From Canada (on Datapac): Call Delphi Customer Service at (617) 491-3393 to get the Datapac number for your area. After you connect, press the period key (.) and ENTER (use two periods if you're using 1200 Baud). Type SET 2:1, 3:126 and press ENTER. Now type p 1 3106, DELPHI; and press ENTER.

From other countries: Many countries have their own data networks that can connect to either Uninet or Tymnet. Check with the telephone authorities in your country for details on how to sign up for this service. When you have an account set up, you can reach Delphi with a "host code" of 312561703088 through Uninet, or 310600601500 through Tymnet. (You'll have to pay the toll charges for this connection.)

Type in Your User Name

If you're already a subscriber to SOFT SECTOR, at the "USERNAME:" prompt, type SOFTSECTORSU and press ENTER. At the "PASSWORD:" prompt, type your individual subscription number from the mailing label of your latest issue of SOFT SECTOR. (If there are one or more zeros at the beginning of this number, include them.)

If you don't already have a subscription, at the "USERNAME:" prompt, type SOFTSECTOROR and press ENTER. At the "PASSWORD:" prompt, type SENDSUB and press ENTER. Have your MasterCard, VISA or American Express card ready, because you'll be led through a series of questions that will enable us to put your SOFT SECTOR and Delphi subscriptions into effect. In an effort to hold down non-editorial costs, we do not bill for subscriptions.

If you make a typing error, just press ENTER and start over. Remember that at any point, when you're on Delphi, you can type HELP to get help on how to use the system. To get off the system just type BYE.

If you find that you're unable to log onto Delphi and enter the MS-DOS SIG after following these instructions, call us during afternoon business hours at (502) 228-4492. We'll be glad to offer assistance.

Come Visit Us! Type: GROUP MSDOS

After you sign in, you'll be prompted to set up your own, personal "user name" — Delphi is a friendly service, no numbers to remember — and you'll be asked a number of questions so Delphi can set up your account. You'll also be assigned a temporary password. No time is assessed against your free hour of service while you answer these questions.

Delphi will tell you that your account will be ready after 6 p.m. the same day if you sign up before noon (Eastern time zone.) If not, your account will be ready at 6 p.m. the next day. Once an account is opened, *each SOFT SECTOR subscriber will be credited with an hour of free time!*

When you log back in, use your chosen user name and your temporary password to access the system. At that point, you will meet Max, who will help you configure things and will change your temporary password into your own *personal* password. This is the password you will use for subsequent sessions — or until you change it. Again, there is *no charge* for the time you spend configuring your account. Your hour of free time starts after Max bids you goodbye.

You'll wind up at the Delphi Main Menu; type in GROUP MSDOS and **join us on the MS-DOS SIG!**

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ASK SANYO

The following questions have been answered by Sandy Waters, marketing manager of the computer division at Sanyo Business Systems Corp. Should you have a question, mail it to: 51 Joseph Street, Moonachie, NJ 07074.

Q. *July 20th I got my Sanyo MBC-555-2 by mail order and realized that the* MailMerge, SpellStar *and* InfoStar *programs and manuals weren't there! I called the mail order company and was informed that Sanyo had goofed and accidentally left out that software on some machines. They said it would be sent to me as soon as Sanyo supplied them with it.*

Well, I waited and waited and decided to write Sanyo directly on September 11. Their reply was that they don't deal directly with mail order companies and that the company I ordered from probably added the second drive themselves. However, the serial number plate affixed to the back of my computer clearly states "Sanyo MBC-555-2!"

Please help! The serial number on my computer is 14313116. Any help you can give would be extremely appreciated!

Michael Feltz
Stevens Point, WI

A. Sanyo Business Systems includes with each MBC-550/555 a series of software packages that are provided free. These packages include; *WordStar, CalcStar* and *Easy Writer-I* which comes packaged inside both the 550 and 555 carton, and an additional software package that is only sold with the MBC-555, or the Sanyo FDD1655, and the FDD3255 upgrade.

The additional software is chosen at our dealers' discretion, and can be either the *Starpac* software package (*DataStar, ReportStar, SpellStar, MailMerge*) by Micropro, or the *Easypac* series (*Easy Filer, Easy Planer, Easy Mailer, Easy Writer II*) by IUS. One additional software package is provided with *every* unit (MBC-555, FDD3255, FDD1655) we sell.

We do not sell directly to mail order, and we have had many letters from people such as yourself who have been told to contact Sanyo to receive software which the mail order houses have not provided. They all say that Sanyo has "goofed," or that they have asked Sanyo to provide it to them. This is simply a stall tactic. There are many reasons for this, some of which are that they put in an additional drive from a third party manufacturer, not a drive sold under the Sanyo name, which is the *only* name Sanyo will support, or they sell the "free software" for profit, or they simply don't have it and never did. All of the letters we receive are for this additional "missing" software — funny isn't it?

This is not to say that all mail order houses are the same. There are some that provide exactly what you are entitled to; it is, however, very difficult to complain when your mail order house is a thousand miles away.

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Q. *I have a Sanyo MBC-555-2 with Micropro bundled software and have a problem. Perhaps you can provide a solution or an explanation for me.*

When using FormGen *and* RGEN, *I cannot get a complete "calculations" listing when I list the form layout with* CONTROL-W. *The calculations documentation seems to stop at the first blank space it encounters, thus leaving the listed line of calculations incomplete. Also, the last line of listed calculations remains in a buffer and does not print until some later (other)* PRINT *command occurs. Please see the attached example where I tried to print the tutorial file,* ORDER. *I get similar results with other generated forms or when I use* CONTROL-W *to list report layouts from* Redit.

The printer I use is a Gemini 15-X. Do I have an interface problem or is this a software problem?

A. In regard to the problem you are having with *RGEN* and *Redit* not completely listing "calculations," I have not heard of any problems of this sort, either from Micropro or other end users. I cannot offer a solution because it seems to be particular to your system only. It could be an interface problem with your printer, which you state is a Gemini-15X. The CONTROL-W option seems to work well on Sanyo printers.

Q. *I cannot get correct results on any of my* CalcStar *programs that use the* +SUM *function in Line 32, either horizontally or vertically. The only way I can obtain a correct total is by plusing a series of individual cells, and you can imagine what problems one gets into if one is trying to add five or more cells.*

A. We are aware that there is a bug, which prevents Row 32 from recalculating, in *CalcStar.* There is no correction for this, and Micropro will not correct the problem. For most important spreadsheets, you will simply have to work around this bug or obtain another spreadsheet software. Many users have already complained about this problem. Some have even demanded that we buy them a working spreadsheet since the one we provided is buggy.

Q. FormSort *generates some kind of failure when sorting files between 24K to 32K; at this point the* .NDX *file is 4K to 5K. Whatever occurs is not recognized until I try to run* DataStar *to update a sorted file of this size. At that time,* DataStar *appears with the following message: "Length of key described in this form does not match file* xxxxxxxx.DTA *or its index (*.NDX*) file is not properly terminated. Press* RETURN."

This has occurred with two files that have been in operation for quite some time and whose keys, I guarantee, have not been touched for several months. When this occurs, the only way I have to make the files readable to DataStar *is to create a new file by using* ReportStar *to read and rewrite the old file with instructions to generate a new index file. Doing this will create a new set of files (*.DTA *and* .NDX*) that is recognized by* DataStar *as functional.*

Upon performing this "end run" I have used FILE COMPARE *to get some clue as to what is happening, and I find that the original* .DTA *file and the* ReportStar *generated* .DTA *file have no differences and, of course, are in the proper sequence. However, any attempt to compare the* .NDX *files ends in failure. As a matter of note, comparing the* .NDX *files in binary mode results in an "Internal Error" message, whatever that means.*

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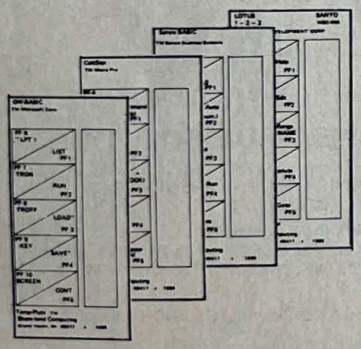

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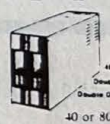

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I can successfully run all my other files. The only difference I find is that the successfully run files are of a smaller volume. A caveat is that I have recently had a Video RAM Board installed by my dealer. The dealer and the distributor both claim that I have had the latest "error free" version of the VRB and that my computer "checks out." Sanyo will not take user inquiries (it wants to work through its dealers?) and Micropro refuses to deal with me because it will not support software that may have been altered by Sanyo. I need help! It is not nice to have a computer/software that prints, adds and sorts in a whimsical manner. This type of dependability preempts any utility I have for the unit. Unless I get an answer, I have a very expensive piece of junk. Please help.

Dan Kubala
Chicago, IL

A. You have stated that your *FormSort* program "causes some kind of failure when sorting files between 24K to 32K . . . ." Our experience is that it is not the *FormSort* file that causes the problem, but the *DataStar* program itself. Apparently, some data files and index files can be organized by the *DataStar* program in such a way the end-of-file marker is not added to the file when *DataStar* is terminated properly.

This is the same kind of error that one would get if one booted up *DataStar*, removed all the data disks and turned the computer off. The data files have not been properly closed.

Attached is a patch, provided by Micropro, that must be made to the FORMSORT.OVR file. After the patch has been made to the file, the user must run *FormSort* on the unterminated *DataStar* file using the patched version of *FormSort*. The patch will force an end-of-file marker onto the *DataStar* files and the problem should be corrected.

I would recommend that you try the patch to *FormSort* and see if this solves your problem.

The following patch for the *FormSort* problem of not putting 1aH at the end of INDX file if that file ends on a sector boundary.

Place the system disk in Drive A. Place the disk with FORMSORT.OVR in Drive B. Make the logged disk drive the B drive.

Type DEBUG B:FORMSORT.OVR. System will respond . . . >

Type E99E. The system will respond with 075d:099E 00. The first four numbers may not be the same; only the address 099E will be the same. It will be 00.

Enter 10 and press RETURN.

The system will respond with a '>' prompt.

Type NFORMSORT.OVR and hit RETURN.

The system will respond with a '>' prompt.

Type W and the system will respond with WRITING A280 bytes.

Type Q and you will be returned to the operating system.

CORRECTION

While making my program *Envelope Addressor* adaptable to a wider range of printers, I let a minor bug slip in. As submitted, the printer will not be initialized due to a missing colon in Line 1080. The correct line is:

```
1080 LOCATE 24,3:PRINT "Does your printer need
initialization (Y or N)? ";:PRINTER$=IN
PUT$(1)
```

Thank you.

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Use the ANSI.SYS device driver to configure your video display

Exploring ANSI.SYS

By Danny Humphress

After a rather short introduction to MS-DOS system configuration last month, we are ready to move on to putting the CONFIG.SYS file to use. This month, we'll explore ANSI.SYS, the ANSI standard console driver.

ANSI.SYS

Probably the most common MS-DOS device driver is ANSI.SYS. ANSI.SYS causes your computer's console (the keyboard and display) to understand the codes used by terminals that follow the ANSI standard. Specifically, these are standard escape sequence codes used to reassign keys, change the display attributes and control cursor movement. Many programs use these ANSI codes because they are constant from one terminal or computer to another, regardless of the keyboard or video display used.

The fact that many commercial programs require the ANSI.SYS driver is reason enough for having it installed in your configuration file (CONFIG.SYS). However, ANSI.SYS offers many features the non-programming power user can take advantage of outside of these commercial software packages. By redefining keys and changing the video attributes, you can configure your MS-DOS system to work as your very own creation. It's these functions of ANSI.SYS that warrant our attention.

ANSI Codes

Each ANSI function code is a series of characters beginning with an ESCAPE character (ASCII 27). These characters are simply sent to (printed on) the display. Instead of the characters being displayed on the screen, they are "caught" by ANSI.SYS and the specific operation is performed.

The ANSI function for clearing the screen, for example, is ESC [2J. To clear the screen using the ANSI codes, you would send an ESC character followed by the three characters, [2J.

If you're a BASIC programmer, your first response might be to do something like PRINT CHR$(27);"[2J" in BASIC. You would be on the right track, but unfortunately, you can't use the ANSI codes directly from BASIC. This is because BASIC bypasses the BIOS (the internal program that controls input/output) and has its own way of handling the video display.

You might try pressing ESCAPE on the keyboard and typing [2J. Close, but MS-DOS does not display the ASCII code for ESCAPE when you press the key; instead it cancels the command line you're writing. Sorry.

So, the problem is that it's hard to get an ASCII 27 to display on the screen. Well, it's not *that* hard. An easy way to do it is to store an ESCAPE character and the other characters in a file. Then, whenever you want the ESCAPE sequence to go to the screen, you could use the MS-DOS TYPE command. The following BASIC program will create a file called CLEAR with the ESCAPE sequence to clear the screen. You only need to run it once.

```
10 OPEN "0",1, "CLEAR"
20 PRINT #1,CHR$(27);"[2J";
30 CLOSE
```

Now, back in MS-DOS, you could type this command to clear the screen:

```
TYPE CLEAR
```

Of course, you could also just use the MS-DOS CLS command, but this is a simple example of one of the ANSI commands.

By chaining the filename in Line 10 and changing Line 20 for the particular ANSI code you want, this BASIC program can be used to generate files containing any ANSI codes you desire. Remember, though, that you must go back to the MS-DOS level and use the TYPE command to send the file to the display.

(Danny Humphress is the owner of a computer software and consulting firm in Louisville, Ky. Danny brings to SOFT SECTOR his extensive experience with small business computers and applications software.)

Screen Colors

Let's try something a little more exciting. Change the previous BASIC program to read:

```
10 OPEN "0",1, "MYSTERY"
20 PRINT #1,CHR$(27);"[=3h";
30 PRINT #1,CHR$(27);"[34m";
40 CLOSE
```

Now run it, return to MS-DOS and enter TYPE MYSTERY.

If all went well and you have a color monitor, the DOS prompt will be blue and everything you type from now on (or until it's changed back) will be blue.

Line 20 of the program added the code to change the screen to the 80-by-25 color text mode (ESC [=3h). The next line changed the foreground color to blue (ESC [34m).

Please don't try to make heads or tails out of what these codes mean. There is no particular reason that ESC [34m changes the screen blue other than that's just the way ANSI wants it. A full list of ANSI codes can be found in the *MS-DOS v2.11 Reference Manual* among other places. For your information, though, Table 1 lists some common codes for changing the display.

One of the things I like to do with these little screen beautifiers is have a line in my AUTOEXEC.BAT file that will automatically change the screen color to green. Something such as TYPE GREEN would work if GREEN contained the proper ANSI codes. The only problem with this is some programs change the screen attributes back to the boring green on black and you have to enter another TYPE GREEN to get your color preferences back.

Redefine Keys

As mentioned, there are ANSI commands that allow you to change the meaning of the keyboard keys. To do this you have to know two things: the ASCII code or codes generated by the key on the keyboard, and the ASCII code or codes for what you want the computer to do when you strike the key.

This feature of ANSI is not implemented in the standard Sanyo 550 MS-DOS 2.11. It will work, however, if you are using the Video RAM Board or a PC-compatible such as the 775, and have ANSI.SYS installed in your CONFIG.SYS file.

The ASCII code for an uppercase 'A' is 65. The ASCII code for an uppercase 'B' is 66. To tell MS-DOS to redefine the 'A' key so you get a 'B' when it's pressed, you would use the following ANSI command:

```
ESC [65;66p
```

If you are using the above BASIC program to generate this code, Line 20 will look like this:

```
20 PRINT #1,CHR$(27);"[65;66p";
```

The 65 defines the key we are changing and the 66 tells MS-DOS what we're changing it to.

It's unlikely that you would want to change the alphabet around like this unless you're making a DVORAK keyboard, so here's a more practical example:

```
ESC [4;"DIR";13p
```

This ANSI command changes the CONTROL-D key sequence to DIR followed by an ENTER (ASCII 13). Whenever you press CONTROL-D, the computer thinks you typed DIR and pressed ENTER.

There are a couple of things different about this command line. Instead of giving the ASCII values for DIR, we simply enclosed the string in quotes and let the ANSI.SYS driver figure the three ASCII values. The other difference is that we are replacing one keyboard key with four characters, DIR and the ASCII 13. You can use as many characters as you like this way.

In the BASIC program example, you could change Line 20 as follows to use this ANSI command:

```
20 PRINT#1,CHR$(27);"[4;";CHR$(34);
"DIR";CHR$(34);";13p";
```

Some of the special keys on the keyboard, namely the function keys, return two ASCII values instead of just one. The first character of these two-character keys is always an ASCII zero. The next character is a value in the range zero to 255. The PF10 function key, as an example, returns zero and 68. This information can be found in the *MS-DOS v2.11 Reference Manual.*

To program the PF10 key to DIR and ENTER, you would send the following ANSI command to the display:

```
ESC [0;68;"DIR";13p
```

Since the first value is a zero, ANSI.SYS knows this is a two-character key and that the second number is the second character returned by the key. The remaining characters, up to the p, are the new characters for the key.

More ANSI!

We've covered but a few of the available ANSI commands. Hopefully, these are enough to get you to the point where you can look at the charts in the *MS-DOS v2.11 Reference Manual* and know what to do.

In the January "Mastering MS-DOS," we'll use ANSI codes along with a new command, PROMPT, to change the MS-DOS environment to suit our needs, desires and moods. Sound interesting?

Table 1: Common ANSI Codes

ESC [2J	Erase the screen
ESC [K	Erase the current line
ESC [0m	Return to normal attributes
ESC [1m	Bold characters
ESC [4m	Underlined characters (monochrome mode only)
ESC [5m	Blinking characters
ESC [7m	Reverse video
ESC [8m	Concealed characters
ESC [30m	Black foreground
ESC [31m	Red foreground
ESC [32m	Green foreground
ESC [33m	Yellow foreground
ESC [34m	Blue foreground
ESC [35m	Magenta foreground
ESC [36m	Cyan foreground
ESC [37m	White foreground
ESC [40m	Black background
ESC [41m	Red background
ESC [42m	Green background
ESC [43m	Yellow background
ESC [44m	Blue background
ESC [45m	Magenta background
ESC [46m	Cyan background
ESC [47m	White background
ESC [=0h	40 x 25 monochrome mode
ESC [=1h	40 x 25 color mode
ESC [=2h	80 x 25 monochrome mode
ESC [=3h	80 x 25 color mode

INPUT OUTPUT

TIM PURVES
Soft Sector Contributing Editor

Q. *What is the empty 16-pin socket at Location H-11 on the Sanyo mother board?*

Steve Wolniewicz
Mary Esther, FL

A. The Sanyo MBC-550/555 can support two Apple-compatible joysticks.

(Tim Purves is an expert on the Sanyo MBC-550/555 series computers and is an experienced programmer in assembly code, PASCAL, C and BASIC. He is available to answer any technical questions that the readers of SOFT SECTOR might have. All questions should be addressed to SOFT SECTOR, P.O. Box 385, Prospect, Ky. 40059.)

Q. *Will a ProLocked disk work on the Sanyo?*

Rolf Huseby
Brea, CA

A. With the ProLocked disks that I have seen, they seem to work about 50 percent of the time. ProLock looks at timing and data coming from the disk routines. I have heard of a special version of ProLock for the Sanyo, but I don't think any IBM-specific programs come on a "Sanyo-specific ProLock."

Q. *I have an* .EXE *program which runs with a normal* LINK *but not with a* LINK/H. *What could be the problem? Also, are the bytes in the "program segment prefix (PSP)" the same as the ones for the IBM?*

Ashley Campbell
Randolph, NH

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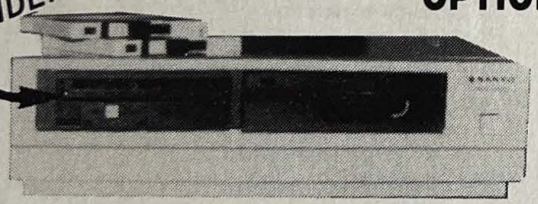

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A. The program segment prefix bytes are the same as the IBM, because basically PC-DOS and MS-DOS are the same. As for the LINK, the /H option is normally used to create a program that loads from BASICA using the LOAD "filename",8 command. For all practical purposes, do not use the /H LINK command.

Q. *I keep getting an error "FOR without NEXT" in Sanyo BASIC. What could be wrong?*

Ralph Pratt
Millersville, MD

A. When Sanyo BASIC is running and it encounters a FOR statement, it scans ahead to find a corresponding NEXT statement. If it scans to the end of the program and cannot find a corresponding NEXT, it will abort with this error.

Q. *I would like to connect my VCR (composite video input) to my Sanyo RGB output. What do I need to do?*

Charley Porter
Captain Cook, HI

A. The Sanyo has both a composite and an RGB output. If you just connect the VCR to the Sanyo composite output, you can record black-and-white pictures. To convert an RGB signal to a color composite signal would require a complex device to regenerate the color burst signal and the composite signal. With the Video Board you could just hook the VCR to the composite output and record in color.

Q. *I would like to run the SORT.EXE program that comes on the MS-DOS system disk from BASIC. How can I do this?*

Dick Peck
Helana, MT

A. If you are using BASICA and not Sanyo BASIC, you could use the command:

```
10 SHELL"sort <inputfile >outputfile"
```

This will sort input file to output file. The other SORT options could also be included if necessary.

Q. *When writing files to disk, I get a "disk full" error after 112 files (even though there is plenty of disk space available). Is there any way to increase the disk limitations?*

David Green
Thatcher, AZ

A. The reason is that a double-sided disk can only have 112 files in the root directory. To allow more files on a disk is part of the reason that MS-DOS 2.11 was created. Under MS-DOS 2.11 you can have tree-structured directories that will allow you to place all common files in one separate directory. With this method you can have as many files as allocation units, which is better than 700 files on a double-sided nine-sector disk.

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CRASH

By Greg Lane

One day near the end of the school year I was sitting in front of a PC wondering what to do to kill some time. After a bit of thought, I came up with an incredibly simple, yet entertaining, game which I call *Crash*. The BASIC game consisted of just 20 lines, yet it provided hours of entertainment for my friends and me.

Anyone who has ever keyed in a program from a magazine will appreciate the simplicity and the action of this game. Take a few minutes to key it in and I'm sure you will be more than rewarded with this action-packed game.

Crash allows you to choose the keys you want to use to control the action. Use the keys you choose to move through the jagged edges of the twisting and winding cavern. Any other key will pause the action until you press a key.

The Sanyo's internal timer is reset at the beginning of the game to keep track of how long you survive.

That's all there is to it. I hope that you find *Crash* as enjoyable as I do.

(Greg Lane is a high school senior and has worked with computers for the past three years. He was recently recognized as the most accomplished student in the 17-year history of his data processing class at Graff Area Vo-Tech Center in Springfield, Mo.)

The listing: CRASH.BAS

```
1Ø REM        CRASH by GREG LANE                                {INITIALIZATION}
15 '
2Ø COLOR Ø,5:CLS:BEEP:DIM L(25):DIM A$(91)
3Ø LINE (4,Ø)-(66,7),,BF:LINE(4,Ø)-(Ø,4):LINE(Ø,4)-(4,7):LINE(67,Ø)-(72,4):LINE(
71,4)-(67,7):PAINT (3,3),Ø,Ø:PAINT (7Ø,3),Ø,Ø
4Ø GET (Ø,Ø)-(71,7),A$                                          {INSTRUCTIONS}
45 '
5Ø CLS:LOCATE 6,34:PRINT "welcome to"
6Ø LOCATE 8,35:PRINT "the game"
7Ø LOCATE 1Ø,38:PRINT "of"
8Ø SYMBOL (265,1ØØ),"CRASH",2,2
9Ø LOCATE 17,33,Ø:PRINT "by Greg Lane"
1ØØ FOR I=1 TO 17ØØ:NEXT I
11Ø CLS:LOCATE 5,16:PRINT "CRASH is a game of quick thinking and fast reflexes."
:LOCATE 7,16:PRINT "All you have to do is guide your man through the":LOCATE 9,1
6:PRINT "twisting cavern without CRASHing into the sides.
12Ø FOR I=1 TO 5ØØØ:NEXT I:CLS
13Ø WHILE LFT$="":LOCATE 1Ø,15:PRINT "Press the key you want to use to move left
.":LFT$=INKEY$:WEND
14Ø WHILE RGHT$="":LOCATE 15,15:PRINT "Press the key you want to use to move rig
ht.":RGHT$=INKEY$:WEND                                          {MAIN LOOP}
145 '
15Ø CLS:LOCATE 14,4Ø:TIME$="ØØ:ØØ:ØØ"
16Ø FOR I=14 TO 23:L(I)=4Ø:NEXT I:X=4Ø:Y=43
17Ø WHILE K$=""
18Ø IF C>23 THEN X=X+INT((RND(1)*5)-2.Ø5):IF X<3 THEN X=X+4 ELSE IF X>68 THEN X=
X-4
19Ø FOR I=14 TO 23:L(I)=L(I+1):NEXT I:L(23)=X
2ØØ PRINT
21Ø PUT ((X-1)*8,(CSRLIN-1)*8),A$
22Ø C=CSRLIN:LOCATE 15,Y+CV:PRINT CHR$(219):CV=Ø:LOCATE 16,Y:COLOR 2,Ø:PRINT CHR
$(2);:COLOR Ø,5:LOCATE 1,1:PRINT TIME$:LOCATE C,1
23Ø IF Y<L(14)+1 OR Y>L(14)+7 THEN BEEP:GOTO 3ØØ
24Ø K$=INKEY$
25Ø WEND
26Ø H$=K$:K$=""
27Ø IF H$=LFT$ THEN Y=Y-1:CV=1:GOTO 17Ø
28Ø IF H$=RGHT$ THEN Y=Y+1:CV=-1:GOTO 17Ø
29Ø SAVETIME$=TIME$:WHILE INKEY$="":WEND:TIME$=SAVETIME$:GOTO 17Ø
3ØØ CLS:IF TIME$>HIGH$ THEN HIGH$=TIME$:LOCATE 8,33:PRINT "Congratulations!"
31Ø LOCATE 1Ø,1Ø:PRINT "Your time was ";TIME$:LOCATE 1Ø,5Ø:PRINT "Best Time ";HI
GH$
32Ø LOCATE 2Ø,2Ø:PRINT "Press RETURN to try again or BREAK to quit":WHILE INKEY$
<>CHR$(13):WEND:GOTO 15Ø
```


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SOFT TALK

The following products recently have been received by SOFT SECTOR, examined by our magazine staff and approved for the *Soft Sector Seal of Certification*, your assurance that we have seen the product and have ascertained that it is what it purports to be.

Soft ★ Sector ★ CERTIFICATION SEAL

MATH TUTOR I is a comprehensive math tutorial which was written to promote student mastery of "mathfacts," as well as multiple-digit problems involving borrowing, carrying, long division, long multiplication and column addition. This program has been home and classroom tested and is intended primarily for use in grades one through eight. It can also be used, however, as a remedial aid for older children and adults.

Math Tutor I includes a number of features including types and levels of problems, interaction with the student, responses to correct and incorrect answers, scoring and reviewing and color and sound options.

Math Tutor I requires 192K and is currently available for $29.95 from DDR Software Associates, 8134 Crystal Creek Road, Sagamore Hills, OH 44067; (216) 467-4587.

* * *

THE GREAT COMMUNICATOR is a telecommunications program which was designed and developed to satisfy a broad range of individuals, ranging from casual teleprocessing users to the true "infomaniac." This program combines the use of function keys, menus and pop-up windows to guide you through the facilities which you need to use it without having to employ confusing commands.

The Great Communicator is geared toward the novice and expert alike. The package omits facilities such as macros, in favor of a less technical windowing approach.

The Great Communicator is currently available for $29.95 from Information Technology, P.O. Box 554, Coventry, RI 02816; (401) 822-4338.

* * *

QUIK SWITCH III is a push-button style video switch that alternates the user's RGB monitor between the Video RAM Board and Sanyo's video output. This switch takes care of sync inversion and mounts neatly to the left side of the Sanyo. It was designed especially for the Panasonic 1300 D (or equivalent type) monitor.

Quik Switch III must be mounted to the computer or allow an electrical ground connection between the computer and the

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bracket of the switch box for proper operation. It is currently available for $79.95 (a monochrome version, Quik Switch I, is available for $29.95) from C-Tek Systems, 132 N. Washington St., Falls Church, VA 22046; (703) 241-4952.

* * *

EINSTEINWRITER is a word processing software package. It comes with one program disk and one speller disk and features capabilities such as: automatic formatting, single keystroke commands, a split screen mode and a 65,000 plus word dictionary. The program supports over 90 different printers, including the new laser printers.

EinsteinWriter includes function key templates, quick-reference guides, a walk-through tutorial in the user's guide, on screen instructions and prompts and error correction messages.

EinsteinWriter requires a Video RAM Board or an MBC-775 and 256K. It is currently available for $169.95 from United Software Industries, Inc., 1880 Century Park East, Los Angeles, CA 90067.

* * *

IBM PC AT HANDBOOK. The *IBM PC AT User's Handbook* is a complete guide to the IBM Personal Computer AT. This book allows a "first time" user to operate and program the Personal Computer AT. It not only covers introductory concepts, but also contains information of interest to the experienced computer user. This book covers topics such as installation all the way to a hardware technical overview.

The *IBM PC AT User's Handbook* is currently available for $17.95 from Weber Systems, Inc., 8437 Mayfield Rd., Chesterland, OH 44026; (216) 729-2858.

* * *

ZBASIC is an interactive BASIC compiler for computers. It features no runtime fees or royalties, no copy protection, works the same for all computers, is interactive, has device independent graphics, is fast, has a free quick SORT on disk, contains executable machine language files, is structured, comes with a complete, illustrated 400-page manual and more.

ZBASIC is currently available for $89.95 from Zedcor, Inc., 4500 E. Speedway, Suite #93, Tucson, AZ 85712; (800) 482-4567.

* * *

STAR GAZING. Now you can look to the stars with your Sanyo with *Astrology* from Prickly-Pear Software. This pro-

Submitting Material

Contributions to SOFT SECTOR are welcome from everyone. We like to run a variety of programs which will be useful/helpful/fun for other Sanyo owners.

- **FORMAT:** Unless the program accompanying your submission is less than 10 lines, we must have the program itself on disk. We will print out the listing to our specifications. We simply cannot take the time to key in (and debug our typing errors) material which is longer than that. Editorial copy can also be included on disk, using any of the word processors currently available for the Sanyo 550, 555 or 775. However, please also include a double-spaced hard copy of your editorial material and hard copy of your program listing. Please do not send text in all capitals. Use upper- and lowercase. While it is a big help to us in typesetting for you to send your article saved on disk using the ASCII option, it is not mandatory. But we must have, at the very least, a double-spaced hard copy of the article.

- **WHAT TO WRITE:** Anything with a practical application. If it interests you, it will probably interest a lot of others. However, we vastly prefer articles with accompanying programs which can be entered and run. We can prepare finished tables, diagrams and schematics from your rough draft *if* you provide legible copy and full directions. We have a continuing need for short articles with short listings.

We do pay for submissions, based on a number of criteria. Those wishing remuneration should *so state* when making submissions.

For the benefit of those who wish more detailed information on making submissions, please send an SASE to: Submissions Editor, SOFT SECTOR, The Falsoft Building, P.O. Box 385, Prospect, KY 40059. We will send you comprehensive guidelines.

Please do not submit programs or articles currently submitted to another publication.

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All back issues sell for the single issue cover price. In addition, there is a $2 charge for the first issue plus 50 cents for each additional issue mailed in the U.S. When possible, issues are mailed UPS. The postage cost in Canada and Mexico is $3 for the first issue and $1 for each additional issue.

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* * *

PC STAT is a statistical package that is designed to compute the most commonly used parametric statistics such as T-test, ANOVA, Pearson Product Moment Correlation and Simple Linear Regression. It allows you to send your results to the printer for a permanent record and also allows you to enter, edit, add and delete data, as well as save data for future use. No previous knowledge of statistics is required.

PC Stat is currently available for $49.95 from Prickly-Pear Software, 2460 N. Conestoga Ave., Tucson, AZ 85749; (602) 749-2864.

* * *

The *Seal of Certification* program is open to all manufacturers of products for Sanyo MBC-550/555 and 775 computers, regardless of whether they advertise in SOFT SECTOR.

By awarding a *Seal*, the magazine certifies the product does *exist* — that we have examined it and have a sample copy — but this *does not* constitute any guarantee of satisfaction. As soon as possible, these hardware or software items will be forwarded to SOFT SECTOR reviewers for evaluation.

S

Helpful Hint . . .

BUG REPORT!

The comparison test for -1 sometimes fails when double precision variables are used. In particular, it will fail for multiples of 17 and some numbers close to multiples of 17. (The actual pattern seems to be when the two high order nibbles are powers of two, i.e., 8763 decimal = 223B Hex and 17420 decimal = 440C Hex.)

Note: This problem only occurs in Sanyo BASIC when using *double precision* variables. It does not occur using BASICA supplied with the optional Video RAM Board.

The latest version of BASIC (version 1.35) fixes this problem. Users may update their BASIC by sending their original system disk to Sanyo. Also, the latest version of BASIC will now be included on the Systems Utilities Disk.

Those wishing to update their BASIC should send their disk to:

Sanyo Business Systems Corporation
51 Joseph Street
Moonachie, NJ 07074
Attn: Computer Division — Customer Service

In addition, if you wish to purchase the System Utilities Disk, you may send a certified check or money order to the above address.

Mark Zeiger
Research & Development Mgr.
Computer Division

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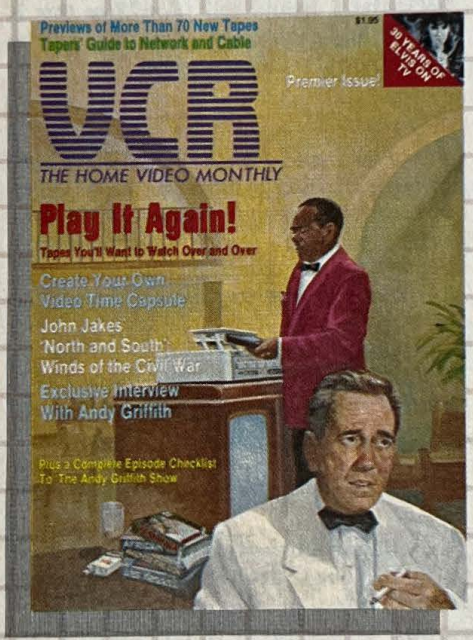
The publishers of Soft Sector are taking an interest in a different type of programming

VCR

THE HOME VIDEO MONTHLY



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We'll tell you which shows the critics themselves will be taping on network and cable, and we'll pass along tips from the experts on how to get the best possible reproductions. You can also turn to us for the answers to your questions, ranging from the trivial to the technical.

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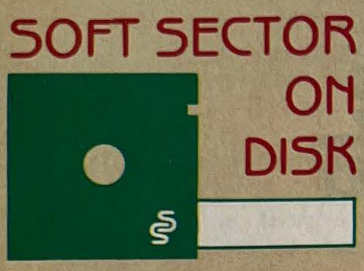

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Several of the first issues of SOFT SECTOR are now out of stock, but the programs from those issues are available as back orders of SOFT SECTOR ON DISK, along with the accompanying text files of the articles ready to be routed to your screen or printer with a simple TYPE command. This may be your only chance to get the programs that you've missed.

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BUSINESS SECTOR

CHARLOTTE & BRIAN STONE
Soft Sector Contributing Editors

Q. *I am an accountant using* WordStar *to print audit reports. I have a problem with page numbers: They print when I don't want them and when I want them they are not the right numbers. How can I either eliminate the numbers or get the ones I want?*

B. E. Sparks
Clovis, NM

A. The way to eliminate page numbers with *WordStar* is to put .OP at the beginning of the file. This tells *WordStar* to omit page numbers. To reverse the procedure type .PN, this will turn the feature on again.

To have selected page numbers, type .PN5 (the 5 would tell *WordStar* this is Page 5), and each subsequent page will be numbered incremented by one.

Q. *I have a C. Itoh A10-20 daisy wheel printer with parallel interface. I wanted to increase the 200 byte buffer to 2K so I purchased the memory chips which should have increased the buffer tenfold. Now that they are installed, I do not see any difference.*

Should I change the X-ON/X-OFF or ETX/ACK protocols from 8-bit to 12-bit parallel or get the RS-232C serial interface?

Bruce A. White
Mt. Rainier, MD

A. Regarding increasing the internal buffer of your C. Itoh A10-20 daisy wheel printer: First of all, if your printer is parallel as you say it is, any parameters, other than for the parallel interface do nothing. For example, the changes you made to *WordStar* regarding X-ON or X-OFF and ETX/ACK protocols (for serial interface only) do not have anything to do with the printer's buffer.

Did you change any DIP switches after you added the additional memory chips for the internal buffer? I would think that this may need to be done so the printer knows the extra chips have been added.

I use a Silver Reed EXP-770 with a 48K internal buffer and *WordStar* works fine. It dumps all of the text and I can then do something different while the text is printed.

If this does not help, send a copy of the manual and buffer upgrade instructions and I will take a look at them.

Q. *I have a problem with the ^QC (end of file) command. When I edit a file with 250 lines and go to the end of the file (Line 250), everything is fine. If I erase the last 50 lines and then use ^QC to go to the end,* WordStar *takes me to Line 250 instead of Line 200 as I think it should. How can I get* WordStar *to stop at Line 200?*

When you are working with WordStar *and a word starts at Column 12 on the screen, it sometimes does not print on paper at Column 12. I have found that to correct this, I occasionally need to erase the line and retype it. I use a Juki 6100 daisy wheel printer.*

I recently reinstalled WordStar *so that my default margin was 78 columns rather than the normal 65 columns. I was very surprised to find when reentering* WordStar *after the installation that the number of columns was 76, not 78 as I had installed. I rechecked my installation and it said right margin at 78 columns. I reinstalled it again and it still will not go over 76. Why?*

Robert Levine
Greensboro, NC

Q. *I use* WordStar *to print wide documents and would like to place decimal tab stops at tab positions greater than 120. I cannot get* WordStar *to take decimal tabs at greater than 99. Is there a way around this problem?*

Robert F. Childs
Placentia, CA

A. I just tried deleting Page 5 of a five-page document and then using ^QR to go to the top then ^QC to get to the end and it works fine. I suspect you are editing BASIC programs and that you still have the '<' character showing in the right margin. If this is the case, *WordStar* is going to the end of the document. *WordStar* will stop at the end if the '.' is showing in the right margin.

I am unable to determine why the right margin cannot be set to 78 characters as a default from the *Install* program. This is a bug that exists in the MS-DOS, as well as the CP/M, versions of *WordStar*. The easiest solution would be to construct a special ruler and load it in as needed. I doubt that you would use the 78 character line for every word processing requirement.

Constructing A Ruler

Type two periods "..", CONTROL-P and press RETURN. This will put your cursor in one column. Now press the hyphen key for the desired ruler length, at least two spaces past the point where you want the

decimal tab. Insert an exclamation point (!) at every location for tabs and a number sign (#) at every location for decimal tabs. When you have what you want, press RETURN again.

To make use of your new ruler, put the cursor on the first hyphen then press CONTROL-OF; this will replace the standard ruler with the new one. If you construct your ruler and save it as a file you will be able to load it anytime you wish.

The problem with columnar alignment is because you are using a daisy wheel printer and probably have not turned micro justification "OFF." This will occasionally cause the screen display and the printed text to vary, particularly if the text has been edited.

Q. *Do you know of any fancy font programs that will work with my Panasonic KX-P1092 dot matrix printer?*

R. Gonzalez
Caracas, Venezuela

A. I cannot recommend a specific font program for the Panasonic KXP-1092 printer. All printers sold in the U.S. emulate Epson printers and as such should do the same in Venezuela. The best way to check this out would be to find a dealer that has some software and take your printer to his store and try it.

You could also watch all of the advertisements in SOFT SECTOR and write to any dealers who have a product that looks like what you need.

Q. *I would like to read my special dictionary created with* SpellStar *into a* BASIC *program so that I could print it in a three or four column format. Can you help me?*

Stan Smith
Clearwater, FL

A. It is not possible to gain access to the *SpellStar* dictionary to be able to print a listing of it. The reason is, it is a compressed file and it would be necessary to know the compression algorithm to allow it to be converted into meaningful information.

Q. *I own a Smith-Corona D100 dot matrix printer and would like to use it for output from* Freeze Frame *by MichTron. It works great with text but prints about half of a blank line between each line of print on graphics. Do you know what is wrong?*

Claude Major
Montreal, Quebec

A. I have checked with MichTron about the spacing problem with your Smith-Corona D100 dot matrix printer when used with *Freeze Frame*. It seems that if you install *Freeze Frame* for the Gemini printer, your graphics will print correctly. If this does not work I suggest that you contact MichTron directly.

(Charlotte Stone, office manager for the Detroit office of the Shaw/Walker Co., has been using a Sanyo computer in her daily work routine since October of 1983. Brian Stone has been using a variety of Sanyo computers since May of 1983. Both have been involved with computers since their first purchase in July of 1978.)

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ONE-LINERS

Here we are again with more winners of The First Great SOFT SECTOR One-Liner Contest. The authors of these winning entries will receive a copy of the December edition of SOFT SECTOR ON DISK.

To briefly restate the rules of the contest, begin the program with the number one and end it in a single line. Anything else goes. Entries will be accepted in either Sanyo BASIC or GW-BASIC. Include a printed listing, a title for the program and a short explanation of what it does. Send it to The First Great SOFT SECTOR One-Liner Contest, P.O. Box 385, Prospect, KY 40059.

FLASH

This program, called *Flash*, exercises your memory by flashing sequences of digits (1 through 9) for you to repeat. The sequence starts as one digit, and another is added on for every correct repetition. If you can correctly work your way up to a 99-digit sequence, the program will stop and you can claim victory! To add more challenge, shorten the delay loop with the K variable.

```
1 CLS:DEFSTR A-C:FOR I=1TO 99:A=A+CHR$(R
ND*8+49):FOR J=1TO I:B=MID$(A,J,1):SYMBO
L (268-75*(INSTR("369",B)>Ø)+75*(INSTR("
147",B)>Ø),84-4Ø*(INSTR("123",B)>Ø)+4Ø*(
INSTR("789",B)>Ø)),B,6,4:FOR K=1TO 99:NE
XT:CLS:NEXT:INPUT C:IF C=A THEN NEXT I E
LSE PRINT "ANS:"A
```

Dave Raymond
Lancaster, PA

★★★★★

RESISTOR

Here is a program that figures total resistance for resistors in parallel. For those who like to tinker in electronics like I do, this program can be very helpful. When you don't have the resistor you need and you have to dig through your junk box, putting together an assortment of resistors to reach the desired resistance, you can use this program to find the proper combination of resistors.

Thanks to David Huggett's method of going beyond the 256 byte line (SOFT SECTOR, September '85, Page 26), I was also able to include a handy color code chart with this program.

```
1 CLS:DATA Ø BLACK,1 BROWN,2 RED,3 ORANG
E,4 YELLOW,5 GREEN,6 BLUE,7 VIOLET,8 GRA
Y,9 WHITE:FOR C=1 TO 1Ø:READ N$(C):SYMBO
L(375,C*1Ø),N$(C),4,1,6:NEXT:INPUT"HOW M
ANY RESISTORS IN PARALLEL";N:PRINT:FOR I
=1 TO N:PRINT"VALUE OF #";I;:INPUT R(I):
S=S+1/R(I):NEXT:T=1/S:LOCATE 14,1:PRINT"
TOTAL RESISTANCE IS";T;"OHMS"
```

Allan Pentecost
Carmichael, CA

★★★★★

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If you need a larger listing try this: `100 WIDTH 40:LFILES`.

```
1ØØ  CLS:LPRINT  CHR$(27)"@";:INPUT"#  O
F COLUMNS FOR LISTING ";N:  W=N*18:WIDTH
 W:LPRINT  CHR$(27) "S" CHR$(1) CHR$(27)
 "A" CHR$(5) CHR$(15):LFILES:LPRINT CHR$
(27)"@"
```

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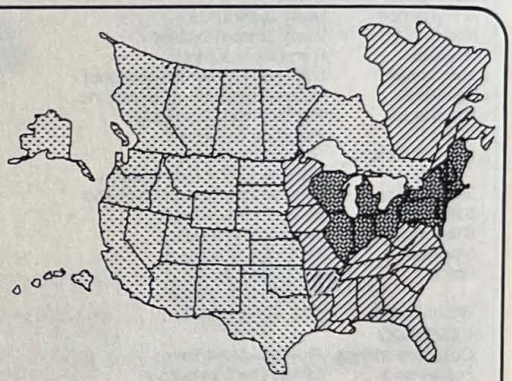

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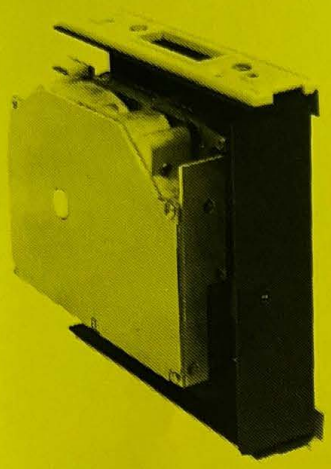

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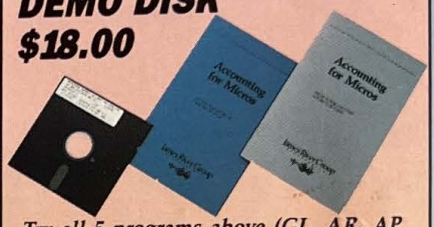

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